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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

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SNOW AND ICE BULLETIN.

NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *December 7, 1915.*

DEPTH OF SNOW.

There was an unusual absence of snow in nearly all portions of the country during November, and so far in the present month there have been only light falls, except in a few instances. Along the eastern end of Lake Ontario there was unusually heavy snow on the 3d and 4th, the fall at Oswego, N. Y., amounting to 18 inches. Along the northern border from the Dakotas eastward there have been several light falls, but in only limited areas is there now any appreciable depth.

In the western Mountain regions considerable snow appears to have fallen in the far Northwest, especially in Montana and Idaho, where locally the falls have been the heaviest for years in November. Elsewhere in the Mountain regions of the West there has been little snow so far.

Over the greater part of the country the ground remains largely unfrozen, especially in the winter wheat belt, where the soil moisture generally is sufficient for present needs, and the wheat crop is mostly in good condition to enter the winter.

ICE IN RIVERS AND HARBORS.

The unusual warmth during November and the absence of any decided cold weather so far in the present month have prevented the formation of ice to any extent, save on a few of the more northern lakes and streams. On the Missouri River ice is reported from the Dakotas, and on the smaller streams in that vicinity ice to the thickness of 6 inches has formed locally. This is about the same as was reported last year at the same date.

In the upper Lake region ice has formed in a few of the more protected harbors, but at no point is the thickness reported as exceeding 2 inches. At the same time last year the Lakes were practically free of ice.

In New England the lakes and rivers are free of any appreciable quantities of ice, and only slight amounts have formed so far in the upper tributaries of the Hudson.

The following special reports have been received:

Brattleboro, Vt., December 6.—There is some snow on the hills near here, and there is merely light shore ice in the Connecticut River.

Albany, N. Y., December 7.—There is a trace of snow in the Hudson Valley, and in the Mohawk the depth ranges from a trace at Schenectady to 2 inches at Utica. There is no ice of importance in either river.

Mifflintown, Pa., December 6.—The tops of the mountains in this vicinity have from one-half to one inch of snow.

Yankton, S. Dak., December 6.—The Missouri River here has been full of rapidly moving slush ice since December 1, preventing passage of the ferry.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 6, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.
Illinois.	*Inches*	*Inches*
Walnut	T.	.....
Indiana.		
Fort Wayne	T.	.....
Marion	T.	.....
Iowa.		
Dubuque	0	†
Maine.		
Bangor	T.	0.0
Greenville	3	0.0
Lewiston	T.	†
Millinocket	2	.....
Van Buren	1	.....
Maryland.		
Easton	T.	.....
Massachusetts.		
Adams	T.	.....
Amherst	T.	.....
Michigan.		
Alpena	2	*
Ann Arbor	T.	.....
Bloomingdale	T.	.....
Cadillac	1	.....
Calumet	T.	.....
Detroit	T.	0.0
Escanaba	T.	0.0
Grand Haven	1	.....
Grand Rapids	1	.....
Houghton	T.	2.0
Iron River	T.	.....
Lansing	T.	.....
Ludington	T.	0.5
Marquette	T.	0.0
Port Huron	2	0.0
Saginaw	1	0.5
Sault Ste. Marie	3	*
Minnesota.		
Duluth	T.	†
Moorhead	T.	6.0
Minnesota—Contd.		
Roseau	T.	.....
Winton	6	.....
Montana.		
Kalispell	T.	.....
Missoula	T.	.....
Nebraska.		
Omaha	0	†
New Hampshire.		
Keene	T.	.....
New York.		
Albany	T.	*
Binghamton	1	.....
Buffalo	T.	0.0
Canton	T.	.....
Ithaca	2	.....
Lowville	2	.....
Oswego	8	0.0
Perrysburg	10	.....
Rochester	T.	0.0
Roslyn	T.	.....
Saranac Lake	2	.....
Schenectady	T.	.....
Syracuse	1	.....
Utica	2	.....
Watertown	9	.....
North Dakota.		
Bismarck	T.	4.0
Williston	0	*
Ohio.		
Ashland	1	.....
Cleveland	T.	0.0
Columbus	T.	.....
Toledo	T.	0.0
Warren	1	.....
Wauseon	T.	.....
Pennsylvania.		
Drifton	T.	.....
Erie	2	0.0
Pennsylvania—Cd.		
Greensboro	T.	.....
Huntingdon	T.	.....
Indiana	T.	.....
Lawrenceville	T.	.....
Mifflintown	T.	.....
Parkers Landing	T.	.....
Scranton	T.	.....
Towanda	T.	.....
Warren	1	.....
South Dakota.		
Huron	0	4.0
Pierre	0	*
Yankton	0	†
Vermont.		
Brattleboro	0	*
Burlington	1	0.0
Northfield	T.	.....
St. Johnsbury	T.	.....
Virginia.		
Williamsburg	T.	.....
West Virginia.		
Bayard	4	.....
Elkins	1	*
Fairmont	T.	.....
Holcomb	T.	.....
Wisconsin.		
Barron	T.	.....
Delavan	T.	.....
Fond du Lac	T.	.....
Grand Rapids	T.	.....
Green Bay	0	†
Medford	T.	.....
Milwaukee	T.	0.0
Viroqua	T.	.....
Wausau	T.	*
Wyoming.		
Yellowstone Park	1	.....

* Shore ice. † Floating ice. T. indicates trace.

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Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *December 14, 1915.*

DEPTH OF SNOW.

Mostly fair weather prevailed during the first half of the week just closed, except during Wednesday and Thursday a storm of considerable severity passed from the Lake region to New England, accompanied by some snow to the northward and westward of the storm track.

By Thursday a storm of considerable magnitude had developed on the eastern slope of the Rocky Mountains and moved to Kansas and Oklahoma, but without appreciable precipitation. During the latter part of the week this storm moved to the eastward and considerable precipitation occurred in nearly all districts from the middle Plains region to the Atlantic coast and New England.

During Sunday and Monday heavy falls of snow occurred over the North Atlantic States, and there was more or less snow in the southern Appalachian Mountain districts and over the Ohio Valley and Lake region. At 8 a. m. of Tuesday the storm had moved to the New England coast and increased greatly in intensity. High winds with heavy rain and sleet occurred along the coast, and much snow appears to have fallen over the interior portions of New York and New England, causing serious inconvenience to traffic and many breaks in wire communication.

At 8 p. m. Monday there was more than a foot of snow on the ground at points in New York and nearly as much in southern New England, and heavy snow still continues at this writing.

For the week as a whole there was a very general increase in the depths reported last week, especially in the Lake region and over the Appalachian Mountains and North Atlantic districts.

In the western Mountains there appears to have been considerable additional snow during the week in the more northern districts, where the snowfall has so far this season been considerably above the normal.

At the same period last year the country was widely snow covered, although the depths were comparatively slight, except in portions of the lower Lake region and Appalachian Mountains, where the covering ranged from 6 inches to a foot or more.

ICE IN RIVERS AND HARBORS.

Rather moderate winter temperatures prevailed over the northern districts during the early and middle portions of the week and little additional ice formed on the rivers and lakes of those regions. Near the end of the week colder weather prevailed in New England, and at the end it was decidedly cold in the Northwest, and considerable increases in the ice thickness are now reported from those districts. On the Missouri at Bismarck, N. Dak., there is nearly 10 inches of ice and only slightly less is reported on the Red River of the North.

On the upper Mississippi and its tributaries only shore ice has yet formed and similar conditions prevail on the larger streams of the Atlantic coast, except in New England, where on most of the streams and lakes ice from 2 to 3 inches in thickness formed during the week.

In the region of the Great Lakes some additional ice formed during the week in protected localities, especially on Lake Superior.

As a whole there is now considerably less ice in all portions of the country than at the corresponding date last year.

The following special reports have been received:

New Haven, Conn., December 13.—It is snowing heavily here at 8 p. m.

Albany, N. Y., December 14.—No snow or ice reports from the Hudson and Mohawk Valleys have arrived, owing to delay in mail service.

Binghamton, N. Y., December 14.—The depth of snow in the Susquehanna Valley averages 5 inches, in the Unadilla 6 inches, in the Chenango 4 inches, and in the Tioughnioga 8 inches, the greatest depth reported being 10 inches at Cortland, N. Y.

Detroit, Mich., December 13.—There is considerable floating ice in Detroit River from Lake St. Clair, and stop ice in the slips is 2 inches thick.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 13, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.
Connecticut.	*Inches*	*Inches*
Hartford	9	†
New Haven	8	0.0
Dist. of Columbia.		
Washington	2	0.0
Illinois.		
Bement	T.	.....
Chicago	3	.....
Oregon	2	.....
Peoria	T.	0.0
Pontiac	2	.....
Springfield	T.	.....
Walnut	T.	.....
Indiana.		
Columbus	T.	.....
Fort Wayne	2	.....
Indianapolis	T.	.....
La Fayette	T.	.....
Marion	1	.....
Richmond	T.	.....
Rochester	2	.....
Valparaiso	1	.....
Iowa.		
Albia	T.	.....
Boone	1	.....
Carroll	3	.....
Charles City	5	.....
Davenport	2	0.0
Des Moines	T.	*†
Dubuque	1	†
Estherville	2	.....
Forest City	2	.....
Iowa City	1	.....
Keokuk	T.	0.0
Mason City	3	.....
New Hampton	9	.....
Pocahontas	3	.....
Sioux City	T.	†
Kentucky.		
Beattyville	T.	.....
Greensburg	T.	.....
Lexington	T.	.....
Mount Sterling	1	.....
Williamsburg	T.	.....
Maine.		
Bangor	T.	2.0
Gardiner	T.	†
Lewiston	0	3.5
Millinocket	3	.....
Orono	2	.....
Van Buren	3	.....
Maryland.		
Baltimore	2	0.0
Easton	3	.....
Frederick	2	.....
Oakland	5	.....
Massachusetts.		
Concord	1	.....
Fitchburg	3	.....
Mansfield	T.	.....
Michigan.		
Alpena	5	*
Battle Creek	2	.....
Big Rapids	6	.....
Bloomingdale	4	.....
Cadillac	5	.....
Calumet	4	.....
Chatham	9	.....
Detroit	2	†
Escanaba	3	0.0
Grand Haven	2	.....
Grand Rapids	1	.....
Houghton	4	3.0
Iron Mountain	2	.....
Iron River	5	.....
Ironwood	12	.....
Lansing	2	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Cont'd.	*Inches*	*Inches*
Ludington	8	1.0
Mancelona	9	.....
Manistee	3	.....
Marquette	5	0.0
Menominee	3	.....
Port Huron	3	1.0
Rock	7	.....
Saginaw	3	1.0
Sault Ste. Marie	6	*
Minnesota.		
Duluth	0	2.0
Grand Meadow	3	.....
International Falls	3	.....
Leech Lake Dam	1	.....
Minneapolis	T.	.....
Moorhead	T.	8.0
St. Paul	T.	*†
Missouri.		
Rolla	T.	.....
Montana.		
Billings	T.	.....
Kalispell	2	.....
Miles City	T.	.....
Missoula	2	.....
Nebraska.		
Omaha	T.	†
Nevada.		
Tonopah	T.	.....
New Hampshire.		
Bethlehem	6	.....
Concord	1	2.0
Hanover	1	.....
New Jersey.		
Atlantic City	2	.....
Bridgeton	2	.....
Long Branch	1	.....
Newark	1	.....
Phillipsburg	10	.....
Sandy Hook	T.	0.0
Trenton	6	*†
New York.		
Addison	1	.....
Albany	14	⅔
Angelica	2	.....
Binghamton	6	.....
Buffalo	4	0.0
Canton	5	.....
Cortland	10	.....
Herkimer	T.	.....
Ithaca	2	.....
Lowville	3	.....
Malone	3	.....
New York	3	.....
Ogdensburg	2	.....
Oswego	7	0.0
Rochester	3	1.0
Rome	8	.....
Roxbury	4	.....
Syracuse	4	.....
Watertown	11	.....
North Carolina.		
Asheville	2	.....
Charlotte	T.	.....
Raleigh	T.	.....
North Dakota.		
Bismarck	T.	9.0
Devils Lake	1	.....
Williston	T.	*
Ohio.		
Canton	1	.....
Cincinnati	T.	0.0
Cleveland	1	0.0
Columbus	1	.....
Dayton	1	0.0
Gallipolis	T.	.....
Marion	1	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Ohio—Cont'd.	*Inches*	*Inches*
Sandusky	1	*
Tiffin	1	.....
Toledo	1	0.0
Warren	2	.....
Wauseon	3	.....
Youngstown	2	.....
Oregon.		
Baker	2	.....
Pennsylvania.		
Clarion	6	.....
Coatesville	3	.....
Drifton	1	.....
Ellwood City	1	.....
Emporium	2	.....
Erie	2	0.0
Franklin	3	.....
Greenville	3	.....
Harrisburg	3	†
Huntingdon	3	.....
Hyndman	3	.....
Indiana	6	.....
Johnstown	4	.....
Lawrenceville	1	.....
Meadville	3	.....
Mifflintown	2	.....
Parkers Landing	4	.....
Philadelphia	5	0.0
Pittsburgh	T.	0.0
Reading	5	0.0
Ridgway	5	.....
Saltsburg	1	.....
Scranton	6	.....
Somerset	7	.....
Stroudsburg	3	.....
Sunbury	2	.....
Towanda	2	.....
Warren	4	.....
Washington	1	.....
Williamsport	3	.....
South Dakota.		
Huron	T.	5.0
Pierre	0	1.0
Rapid City	T.	.....
Yankton	T.	*
Vermont.		
Brattleboro	T.	3.0
Burlington	4	0.0
St. Johnsbury	1	.....
Virginia.		
Fredericksburg	4	.....
Lynchburg	T.	0.0
Washington.		
Spokane	4	.....
West Virginia.		
Bayard	6	.....
Burlington	1	.....
Charleston	T.	.....
Elkins	3	0.0
Fairmont	1	.....
Hinton	2	.....
Parkersburg	T.	0.0
Wisconsin.		
Brodhead	2	.....
Delavan	3	.....
Fond du Lac	4	.....
Green Bay	3	1.5
La Crosse	2	*†
Madison	2	.....
Medford	1	.....
Milwaukee	4	.....
Rhinelander	2	.....
Viroqua	2	.....
Wausau	1	5.0
Wyoming.		
Sheridan	2	.....
Yellowstone Park	2	.....

*Shore ice. †Floating ice. ⅔ Measurement impracticable. T. indicates trace.

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U. S. DEPARTMENT OF AGRICULTURE,
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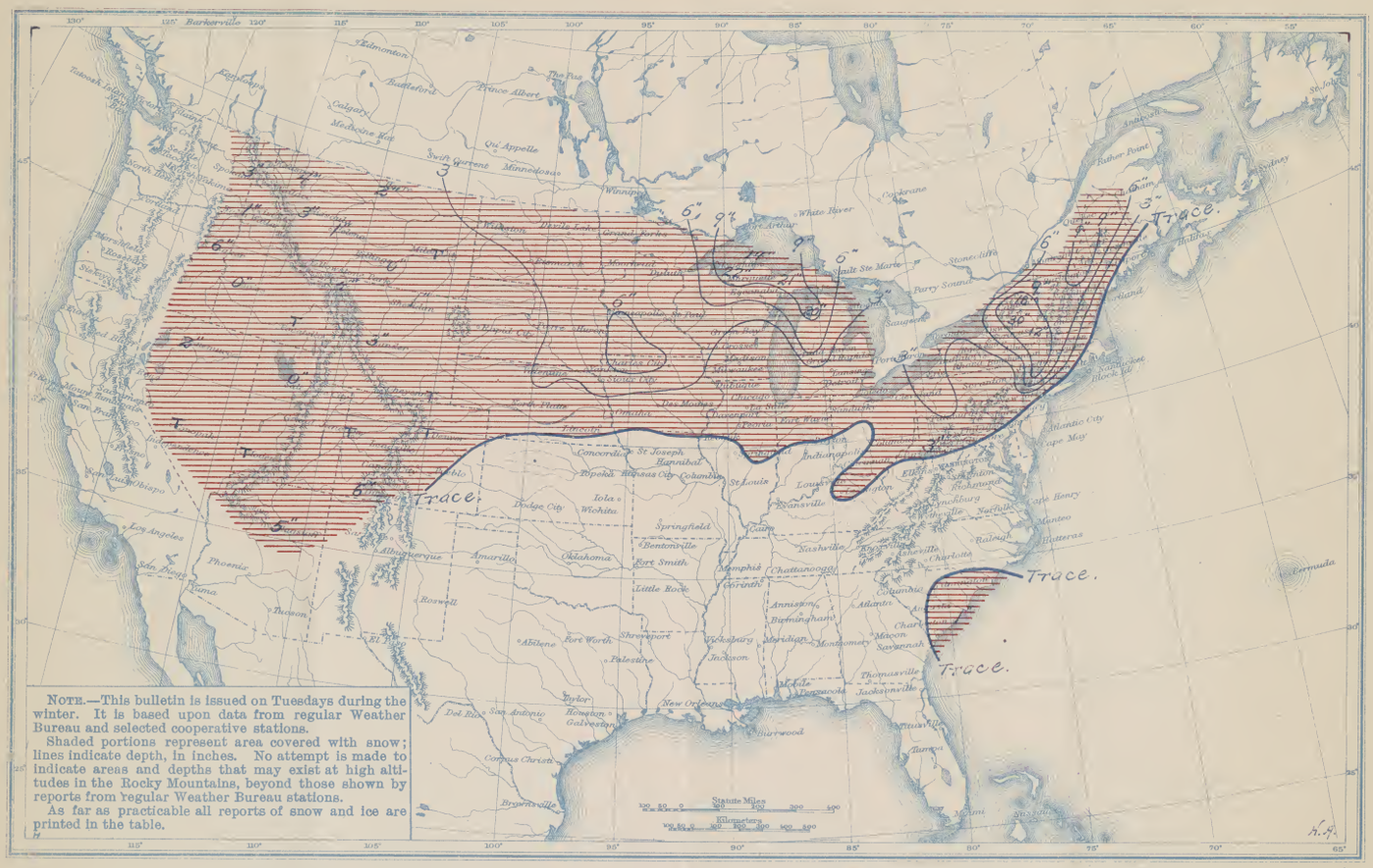
SNOW AND ICE BULLETIN.



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WASHINGTON, D. C., *December 21, 1915.*

DEPTH OF SNOW.

The severe storm central over New England at the beginning of the week, referred to in this bulletin of December 14, passed off the Canadian Maritime Provinces by Wednesday morning and clearing weather followed. The snowfall from this storm was unusually heavy in the interior districts from central Pennsylvania northeastward to New England, the depths at points in New York reaching nearly three feet. The moist condition of the snow in the districts near the coast caused heavy accumulations on wires, and much damage and inconvenience resulted, while farther inland the high winds drifted the snow badly, causing serious delay to traffic.

As the storm referred to above passed off the Atlantic coast another developed in the Southwest, and by Thursday morning it was central over Arkansas, and precipitation, mostly light and in the form of rain, had occurred over large portions of the interior valleys. During the following two or three days storm movement was rapid in the central valleys, and heavy rains fell in portions of the Gulf States and Ohio Valley, and more or less rain or snow occurred with these storms over the entire country from the Plains region eastward.

These storms had moved off the Atlantic coast by Sunday, but during Monday a storm passed rapidly northeastward near the south Atlantic coast, and considerable snow fell in connection therewith along the Georgia and Carolina coasts, the fall at Wilmington, N. C., from 8 p. m. Monday to 8 a. m. Tuesday, amounting to 7 inches or more. At the close of the week, considerable portions of the snow that fell over the Northeastern States at the beginning had melted from the effects of warm rains, but the ground is still heavily covered in the interior portions of New York, and to a less extent in portions of New England. In the Middle Atlantic States and the Appalachian Mountain regions, however, much of the covering reported last week has now disappeared. From the Great Lakes westward there has been a general increase in the depth and extent of the snow.

In the mountain regions of the West there is now more or less snow at all lower levels from the northern portions of Arizona and New Mexico to the Canadian boundary, and it is probable considerable increases have occurred in the stored depths of the higher mountains.

ICE IN RIVERS AND HARBORS.

The temperatures during the week just closed were moderately high for mid-December, and no unusual increase in the ice formation occurred over the amounts reported last week.

In the more northern portions of the country the cold was sufficient to cause the formation of some additional ice, the increases during the week amounting to as much as 7 inches at points on the upper Missouri River, but in general they were much less. The Missouri River is now frozen over as far south as Sioux City, with a maximum thickness of 12 inches at Bismarck. The Mississippi is still open from St. Paul southward, except at Keokuk, where some solid ice has formed. Floating ice is reported, however, throughout the upper portions. The Ohio continues open throughout its course and practically no ice has yet formed on the main rivers of the Atlantic coast.

In the Lake region some ice has now formed on the protected harbors of all the Lakes, but navigation was still possible.

At the same date last year the ice was much heavier and extended much farther south than at the present time.

The following special reports have been received:

Hartford, Conn., December 21.—The depth of snow in the Connecticut Valley averages 4 inches. Navigation of the river between Hartford and Long Island Sound continues, but 6 inches of ice have formed farther north.

Albany, N. Y., December 21.—The snow in the Hudson Valley averages 11 inches deep, and in the Mohawk 9 inches. The Hudson River is open today southward from Albany, but the Mohawk is frozen in places.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 20, 1915.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	5	.....
Colorado.		
Denver	T.	.....
Durango	6	.....
Grand Junction	T.	.....
Pueblo	T.	.....
Connecticut.		
Hartford	6	0.0
New Haven	3	0.0
Georgia.		
Savannah	T.	0.0
Idaho.		
Lewiston	.1	0.0
Pocatello	T.	.....
Illinois.		
Antioch	2	.....
Bement	T.	.....
Chicago	3	.....
Peoria	2	2.5
Pontiac	2	.....
Walnut	1	.....
Indiana.		
Fort Wayne	T.	.....
Richmond	T.	.....
Rochester	1	.....
Valparaiso	1	.....
Iowa.		
Atlantic	2	.....
Charles City	6	.....
Davenport	2	†
Des Moines	1	5.0
Dubuque	1	†
Estherville	6	.....
Forest City	6	.....
Iowa City	2	.....
Keokuk	T.	4.0
Mason City	6	.....
New Hampton	6	.....
Pocahontas	6	.....
Sioux City	4	4.0
Kentucky.		
Lexington	T.	.....
Maysville	T.	.....
Maine.		
Bangor	T.	5.0
Gardiner	T.	†
Greenville	9	9.0
Lewiston	4	6.0
Millinocket	6	.....
Portland	2	0.0
Van Buren	6	.....
Maryland.		
Frederick	T.	.....
Oakland	2	.....
Massachusetts.		
Adams	10	.....
Amherst	5	.....
Concord	T.	.....
Fitchburg	3	.....
Michigan.		
Alpena	4	*†
Battle Creek	2	.....
Big Rapids	6	.....
Cadillac	7	.....
Calumet	15	.....
Chatham	21	.....
Detroit	T.	4.5
Escanaba	6	0.0
Grand Haven	1	.....
Grand Rapids	4	.....
Harrisville	4	.....
Houghton	14	0.0
Iron Mountain	9	.....
Iron River	11	.....
Ironwood	22	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Contd.	*Inches*	*Inches*
Lansing	1	.....
Ludington	6	4.0
Mancelona	20	.....
Manistee	6	.....
Marquette	11	0.0
Newberry	11	.....
Port Huron	1	4.0
Rock	13	.....
Saginaw	2	4.5
St. Ignace	6	.....
Sault Ste. Marie	6	*
Minnesota.		
Campbell	3	.....
Collegeville	4	.....
Duluth	2	6.0
Fort Ripley	3	.....
Grand Meadow	4	.....
Hinckley	4	.....
International Falls	5	.....
Mankato	4	.....
Milan	8	.....
Minneapolis	4	.....
Pipestone	4	.....
St. Paul	5	*†
Missouri.		
Hannibal	0	*†
Kansas City	0	†
St. Joseph	0	*†
Montana.		
Havre	2	.....
Helena	1	.....
Kalispell	4	.....
Miles City	T.	.....
Missoula	3	.....
Nebraska.		
Halsey	4	.....
Imperial	3	.....
Lincoln	2	.....
Norfolk	1	.....
North Platte	2	.....
Omaha	T.	*†
Valentine	2	.....
Nevada.		
Tonopah	T.	.....
Winnemucca	2	.....
New Hampshire.		
Bethlehem	9	.....
Concord	2	4.0
Durham	2	.....
Hanover	4	.....
Keene	7	.....
New Jersey.		
Newark	1	.....
Phillipsburg	2	.....
Trenton	T.	0.0
New York.		
Albany	11	†
Angelica	1	.....
Beaver River	30	.....
Binghamton	2	.....
Buffalo	3	*
Canton	5	.....
De Ruyter	8	.....
Herkimer	9	.....
Ithaca	1	.....
Lowville	6	.....
Malone	3	.....
Ogdensburg	3	.....
Oswego	5	0.0
Plattsburg	4	.....
Rochester	T.	3.0
Rome	6	.....
Saranac Lake	18	.....
Saratoga Springs	12	.....
Syracuse	4	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
New York—Contd.	*Inches*	*Inches*
Warwick	15	.....
Watertown	17	.....
North Carolina.		
Wilmington	T.	0.0
North Dakota.		
Bismarck	3	12.0
Devils Lake	3	.....
Williston	4	*
Ohio.		
Ashland	1	.....
Cleveland	T.	0.0
McConnelsville	1	.....
Sandusky	T.	4.0
Tiffin	T.	.....
Toledo	T.	1.0
Wauseon	1	.....
Waverly	1	.....
Youngstown	2	.....
Oregon.		
Baker	6	.....
Pennsylvania.		
Allentown	1	.....
Clarion	6	.....
Coatesville	T.	.....
Drifton	1	.....
Franklin	2	.....
Greenville	3	.....
Harrisburg	T.	†
Huntingdon	T.	.....
Indiana	3	.....
Johnstown	2	.....
Meadville	2	.....
Parkers Landing	3	.....
Pittsburgh	T.	0.0
Reading	T.	0.0
Ridgway	4	.....
Scranton	T.	.....
Warren	3	.....
West Newton	1	.....
South Carolina.		
Charleston	1	0.0
Columbia	T.	0.0
South Dakota.		
Huron	5	8.0
Pierre	1	8.0
Rapid City	T.	.....
Yankton	3	4.0
Utah.		
Modena	T.	.....
Vermont.		
Brattleboro	7	6.0
Burlington	6	0.0
Northfield	6	.....
St. Johnsbury	1	.....
Washington.		
Spokane	3	.....
West Virginia.		
Bayard	3	.....
Parkersburg	T.	0.0
Wisconsin.		
Brodhead	2	.....
Delavan	2	.....
Fond du Lac	2	.....
Green Bay	2	5.5
La Crosse	4	⁂
Madison	2	.....
Medford	6	.....
Milwaukee	2	0.0
Viroqua	2	.....
Wausau	5	9.0
Wyoming.		
Cheyenne	T.	.....
Lander	3	.....
Sheridan	1	.....
Yellowstone Park	4	.....

*Shore ice. † Floating ice. ⁂ Ice gorged. T. indicates trace.

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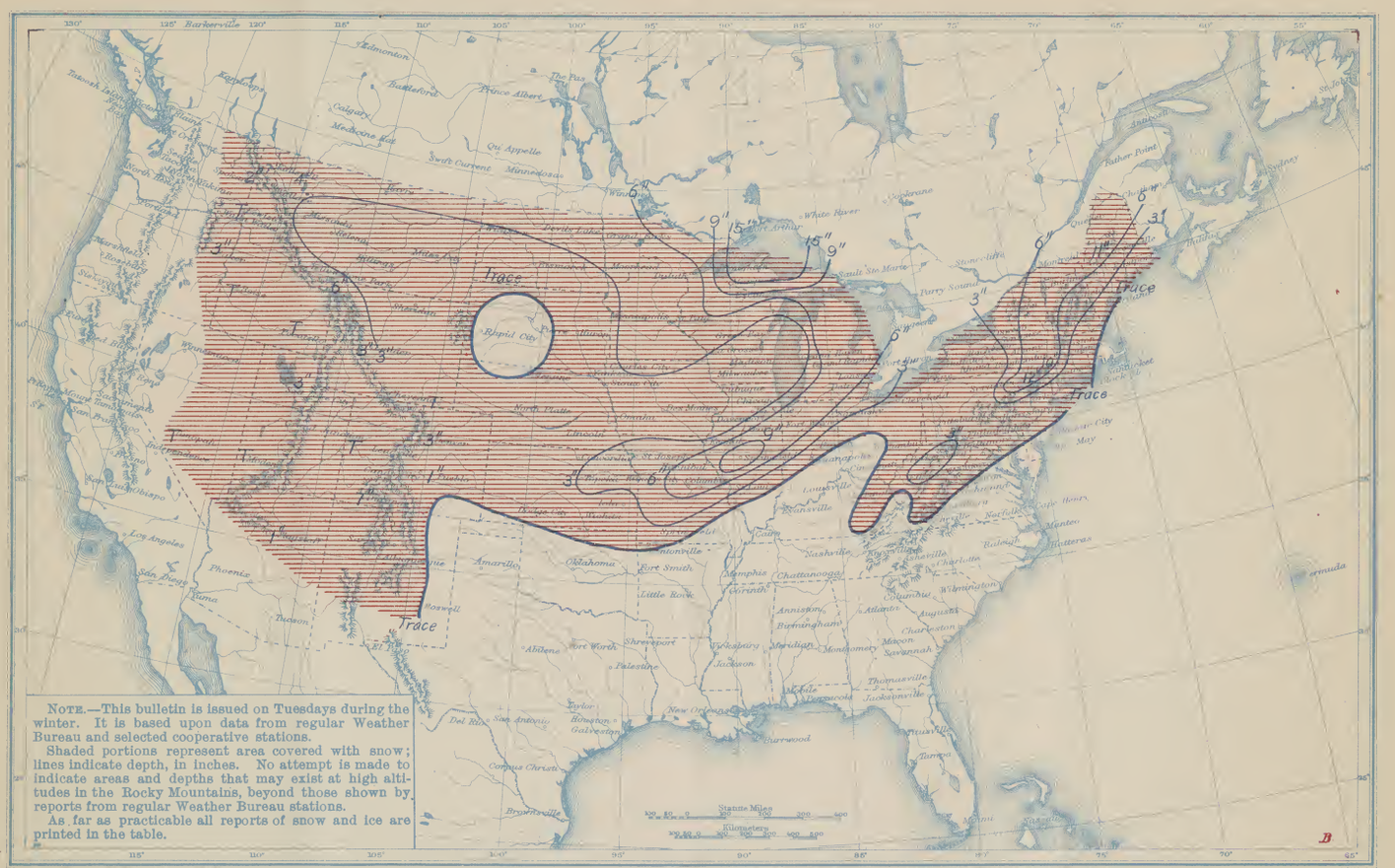
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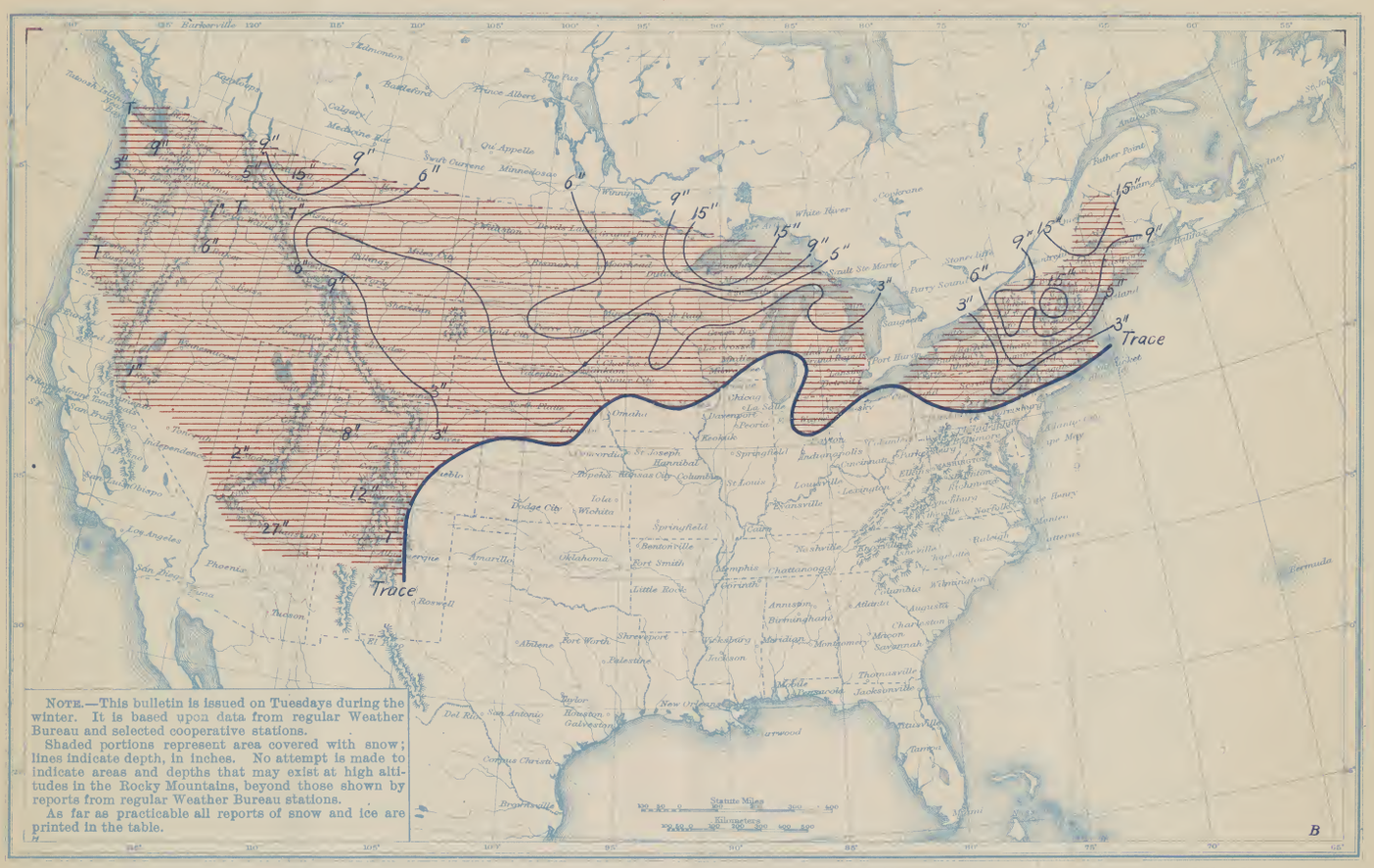

NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *January 4, 1916.*

DEPTH OF SNOW.

During the first few days of the week a storm of marked intensity moved rapidly from the west Gulf coast to New England. This storm was attended by general, and in some cases, heavy rains in southern districts, and rains, sleet, or snow from the Ohio Valley and Lake region eastward, the rainfall being heavy at points in the interior of the Northeastern States. At the same time rains occurred in the Pacific Coast States, and snows in the Rocky Mountain and Plateau districts, the snowfall being unusually heavy at elevated points in northern Arizona, due to a disturbance central over that State on the last day of the year.

During the following two days the disturbance over Arizona moved rapidly northeastward to the Canadian Maritime Provinces and was accompanied by rains or snows over nearly all districts to the eastward of the Rocky Mountains, but owing to the abnormally high temperatures prevailing at the time in most districts, the precipitation was principally in the form of rain, the falls being heavy in portions of the central valleys.

During the last two days of the week fair weather was the rule to the eastward of the Rocky Mountains, but a storm of considerable energy moved inland from the north Pacific coast, which at this writing is central over the northern Rocky Mountain region. It is causing precipitation, mostly snow and locally heavy, in northern districts to the westward of the Mountains.

The warm weather of the past week carried away practically all the considerable body of snow that covered the region from eastern Kansas and southern Missouri northeastward to Lower Michigan at the end of the preceding week. There is also now less snow in the Appalachian Mountain region than at the same time last week, and likewise at a few points along the eastern slope of the southern Rocky Mountain region. At points in the southern Plateau region the fall for the week has been very heavy, exceeding two feet in the high mountains of Arizona. There has been a considerable increase in the snow cover in the far Northwest, especially during the closing days of the week, and there is generally more snow now than last week over most northern districts, principally at points in South Dakota and Minnesota, and over the greater part of New England and in northern New York.

ICE IN RIVERS AND HARBORS.

No decidedly cold weather prevailed over the central and eastern districts during the first half of the week. However, in the central and northern portions of the Rocky Mountain and Plateau districts cold weather obtained, and temperatures from 10° to 20°, or more, below zero were reported from points in those districts.

By the last day of December temperatures had become abnormally low in New England, with readings of 16° below zero at points in Vermont, and consequently considerable additional ice formed in that district, but during the first day or two of the New Year temperatures were very high for the season over most other central and eastern districts.

There were no marked increases in the thickness of the ice in the rivers and harbors for the week, although there were additions of 2 to 4 inches in portions of the Missouri Valley and upper Lake region, and as much as 8 inches at points in the interior of Maine, but actual decreases have been reported from some points in the lower Lake region.

There is now considerably less ice than at the same time last year at most points where ice usually forms, most harbors in the lower Lake region still remaining open, while practically no ice has yet formed on the Ohio, or the rivers of the Atlantic Coast districts south of New York.

The following special reports have been received:

Hartford, Conn., January 4.—The snow in the Connecticut Valley averages 9 inches deep, ranging from 2 inches in Connecticut to 15 inches at White River Junction, Vt. Floating and shore ice in the river are reported from Long Island Sound up to Holyoke dam, the river being closed to northward of that point.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 3, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	27	.....
Colorado.		
Denver	1	.....
Durango	12	.....
Grand Junction	8	.....
Connecticut.		
Hartford	2	†
New Haven	2	0.0
West Cornwall	15	.....
Idaho.		
Lewiston	T.	*†
Illinois.		
Peoria	0	2.0
Springfield	T.	.....
Indiana.		
Fort Wayne	T.	.....
Marion	3	.....
Terre Haute	0	†
Iowa.		
Carroll	1	.....
Charles City	2	.....
Davenport	T.	‡
Des Moines	0	9.5
Dubuque	0	‡
Estherville	2	.....
Iowa City	T.	.....
Keokuk	0	6.0
Mason City	3	.....
Pocahontas	2	.....
Sioux City	T.	5.0
Maine.		
Bangor	8	6.0
Eastport	8	0.0
Gardiner	6	1.5
Greenville	18	17.0
Lewiston	8	7.0
Millinocket	14	.....
Orono	6	.....
Portland	10	0.0
Massachusetts.		
Adams	8	.....
Boston	6	.....
Concord	8	.....
Fitchburg	9	.....
Mansfield	4	.....
Michigan.		
Alpena	3	*†
Battle Creek	T.	.....
Big Rapids	2	.....
Bloomingdale	T.	.....
Cadillac	3	.....
Calumet	20	.....
Chatham	18	.....
Detroit	T.	6.5
Escanaba	4	*
Harrisville	4	.....
Houghton	18	5.0
Iron Mountain	11	.....
Iron River	16	.....
Ironwood	22	.....
Lansing	T.	.....
Ludington	T.	5.5
Mancelona	4	.....
Marquette	12	0.0
Newberry	12	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Contd.	*Inches*	*Inches*
Port Huron	1	3.0
Rock	14	.....
Saginaw	T.	5.5
St. Ignace	2	.....
Sault Ste. Marie	6	*
Minnesota.		
Campbell	8	.....
Collegeville	8	.....
Duluth	10	13.5
Fort Ripley	8	.....
Grand Meadow	3	.....
Hinckley	7	.....
International Falls	8	.....
Mankato	1	.....
Milan	8	.....
Minneapolis	2	.....
Moorhead	5	13.5
Pipestone	3	.....
Roseau	8	.....
St. Paul	3	6.0
Thief River Falls	8	.....
Winton	18	.....
Missouri.		
Hannibal	0	†
Kansas City	0	*
St. Joseph	0	*
Montana.		
Billings	2	.....
Havre	8	.....
Helena	2	.....
Kalispell	15	.....
Miles City	3	.....
Missoula	7	.....
Nebraska.		
Guide Rock	2	.....
Halsey	6	.....
Imperial	2	.....
North Platte	1	.....
Omaha	0	≷
Valentine	4	.....
Nevada.		
Reno	1	0.0
New Hampshire.		
Bethlehem	13	.....
Concord	10	5.0
Hanover	10	.....
Keene	11	.....
New Jersey.		
Newark	T.	.....
New York.		
Albany	9	0.0
Binghamton	2	.....
Buffalo	1	†
Canton	7	.....
Herkimer	10	.....
Ithaca	3	.....
Lowville	8	.....
Malone	3	.....
Ogdensburg	10	.....
Oswego	1	0.0
Plattsburg	8	.....
Rochester	T.	†
Rome	12	.....
Saranac Lake	30	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
New York—Contd.	*Inches*	*Inches*
Saratoga Springs	6	.....
Syracuse	2	.....
Warwick	8	.....
Watertown	5	.....
North Dakota.		
Bismarck	3	18.0
Devils Lake	3	.....
Williston	3	*†
Ohio.		
Sandusky	0	†
Toledo	T.	†
Wauseon	1	.....
Oregon.		
Baker	6	.....
Portland	1	0.0
Roseburg	T.	.....
Pennsylvania.		
Drifton	4	.....
Emporium	T.	.....
Erie	T.	†
Lawrenceville	3	.....
Mifflintown	T.	.....
Parkers Landing	T.	.....
Stroudsburg	1	.....
Sunbury	1	.....
Towanda	2	.....
Warren	1	.....
Williamsport	2	.....
Rhode Island.		
Narragansett Pier	T.	.....
Providence	2	0.0
South Dakota.		
Huron	10	11.5
Pierre	6	18.0
Rapid City	T.	.....
Yankton	1	9.0
Utah.		
Modena	2	.....
Vermont.		
Brattleboro	11	9.0
Burlington	18	0.0
Northfield	16	.....
St. Johnsbury	14	.....
White River June.	15	.....
Washington.		
North Head	3	.....
Seattle	9	0.0
Spokane	5	.....
Tatoosh Island	T.	.....
Walla Walla	1	.....
Wisconsin.		
Ashland	10	.....
Barron	5	.....
Eau Claire	3	.....
Green Bay	T.	6.0
La Crosse	2	6.5
Madison	T.	.....
Medford	4	.....
Milwaukee	T.	0.0
Wausau	5	9.5
Wyoming.		
Cheyenne	3	.....
Lander	3	.....
Yellowstone Park	9	.....

*Shore ice. †Floating ice. ‡Ice gorged. ≷Measurement impracticable. T. indicates trace.

Albany, N. Y., January 4.—The snow in the Hudson Valley averages 10 inches deep, and in the Mohawk 9 inches. The ice in the Mohawk River averages 3 inches thick. The upper half of the Hudson River is mostly frozen, but ice is much broken.

Binghamton, N. Y., January 4.—The snow averages 7 inches deep in the upper Susquehanna and Tioughnioga Valleys, 8 inches in the Unadilla, and 6 in the Chenango.

P. C. DAY, *Climatologist and Chief of Division.*

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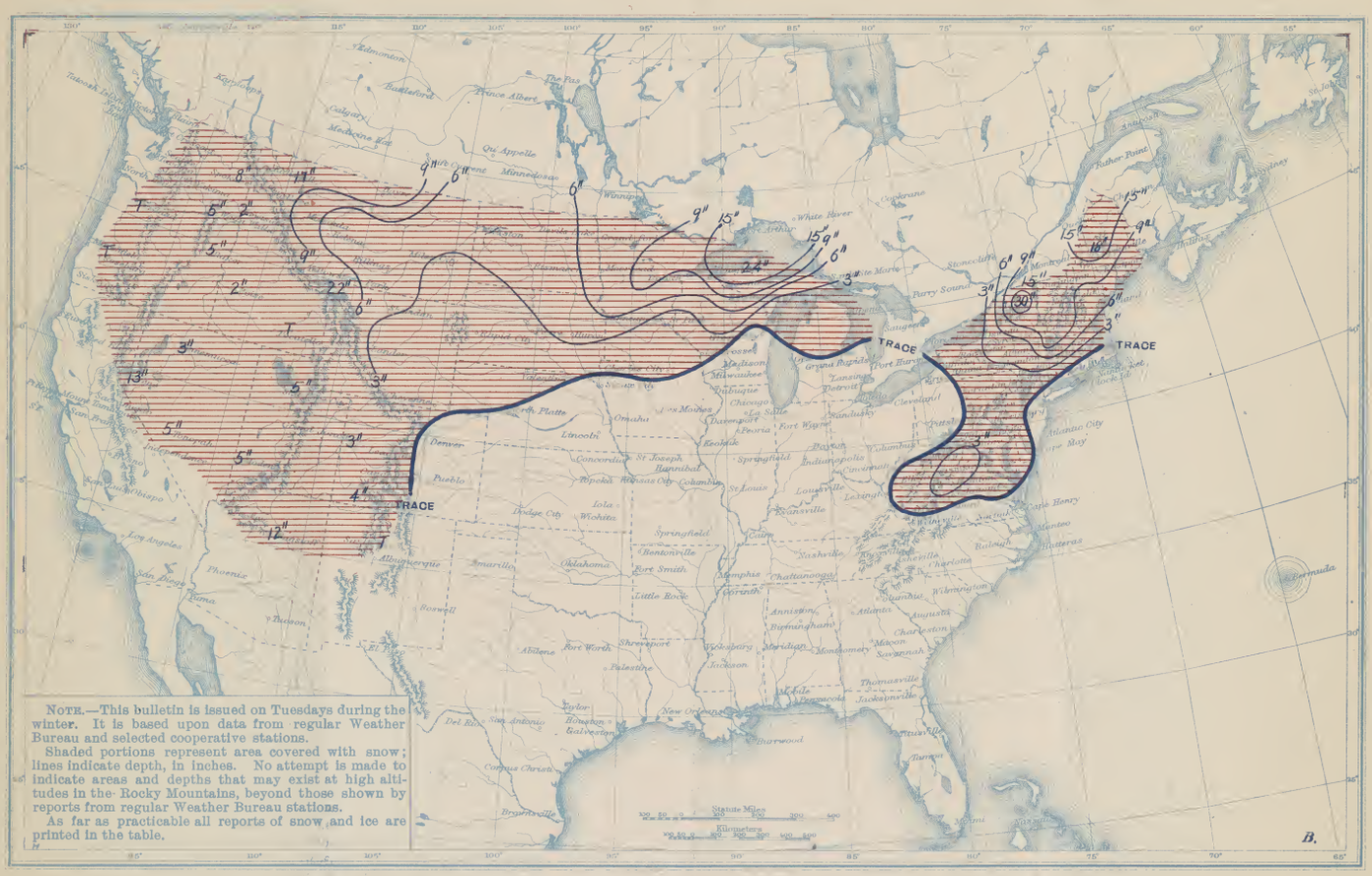
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As far as practicable all reports of snow and ice are printed in the table.
Statute Miles
Kilometers
B.

WASHINGTON, D. C., *January 11, 1916.*

DEPTH OF SNOW.

The storm referred to in the Bulletin for last week, as over the Rocky Mountains, gradually dissipated in that region, although an offshoot appears to have moved rapidly to the Lake region during the early part of the week just closed and thence to New England by Thursday morning, accompanied by light snows in northern districts and light rains from the middle Mississippi Valley eastward.

During Friday and Saturday a low pressure area moved across the Southern States, causing considerable snow in portions of the Middle Atlantic States and thence westward over the southern drainage of the Ohio River, with more or less rain to southward.

Fair weather prevailed over the interior districts during Friday and Saturday, but during the latter part of the week an area of rain and snow extended over practically all portions of the country to westward of the Rocky Mountains, and a storm of considerable intensity moved to the upper Lake region, with general though mostly light rains from the upper Mississippi Valley eastward to the lower Lakes, and some snow over the northern districts.

At this writing the far western storm area has moved to the southern Rocky Mountain region, and low pressure extends therefrom to the middle Mississippi Valley. Light snows are now falling over much of the Plains region, and some heavy snows have occurred in the regions to the westward, while rains have been general, though light, in most eastern districts.

Compared with last week there has been a very general reduction in the depth of the snow cover over all districts from the Rocky Mountains eastward, save along the northern border and at points in the Appalachian Mountain region and portions of Maryland and Virginia, where there have been slight increases. To the westward of the Rocky Mountains there has been considerable snow during the week and a depth of from 3 to 12 inches now covers much of the lower elevations, while in the higher mountains there have doubtless been large accumulations from the storms of the latter part of the week.

The accumulated snow over the central and eastern districts is very generally much less than usual at this period of the winter, only a few small areas reporting more than 6 inches.

In the Mountain districts of the West the indications are that the accumulations are well above the normal over most northern districts, and generally near the normal in other portions.

ICE IN RIVERS AND HARBORS.

Early in the week just closed cold weather overspread the Missouri Valley, and during the following few days it extended into all central and northern districts. Following this cold area there was some warming up in nearly all portions of the country, especially in the interior valleys, but by Sunday another cold area had appeared in the Canadian Northwest Provinces, which by Monday morning had covered the upper Missouri Valley, and at this writing has extended into the upper Lake region.

As a result of the general cold over the more northern districts considerable increases in ice thickness are reported from points in the Dakotas and thence eastward. The ice in the Missouri now ranges from 10 inches at Yankton to 22 inches at Bismarck, and as much as 12 inches is now reported from the upper Mississippi, while on the upper lakes the more protected harbors are closed, the ice ranging from 6 to nearly 20 inches in thickness.

No increases are reported from the lower Missouri and middle Mississippi River districts; in fact, there is now less ice in those regions than was reported last week. The Ohio River continues open, as well as the rivers of the Atlantic coast south of the Hudson. In New England the rivers and lakes are now covered with ice ranging from 8 to 18 inches in thickness.

The following special reports have been received:

Hartford, Conn., January 11.—The snow averages 12 inches deep in the Connecticut Valley in New Hampshire and Vermont, but there is much less in Massachusetts and Connecticut. The amount of ice has increased, and navigation of the lower river was suspended January 8.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 10, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*	*Michigan*—Contd.	*Inches*	*Inches*	*Ohio.*	*Inches*	*Inches*
Flagstaff	12	.....	St. Ignace	1	.....	Sandusky	0	3.0
Colorado.			Sault Ste. Marie	5	2.0	*Oregon.*		
Durango	4	.....	*Minnesota.*			Baker	5	.....
Grand Junction	8	.....	Collegeville	7	.....	Portland	T.	0.0
Connecticut.			Duluth	8	17.0	Roseburg	T.	.....
Hartford	T.	†	Fort Ripley	9	.....	*Pennsylvania.*		
New Haven	T.	0.0	Grand Meadow	1	.....	Allentown	T.	.....
West Cornwall	9	.....	International Falls	8	.....	Coatesville	T.	.....
Delaware.			Leech Lake Dam	9	.....	Drifton	T.	.....
Millsboro	2	.....	Mankato	1	.....	Emporium	T.	.....
Dist. of Columbia.			Milan	6	.....	Erie	0	†
Washington	T.	0.0	Minneapolis	2	.....	Harrisburg	T.	†
Idaho.			Moorhead	6	15.0	Mifflintown	T.	.....
Boise	2	.....	Pipestone	2	.....	Scranton	T.	.....
Lewiston	2	*†	Roseau	8	.....	Stroudsburg	1	.....
Pocatello	T.	.....	St. Paul	2	7.0	Sunbury	T.	.....
Iowa.			Thief River Falls	8	.....	Towanda	T.	.....
Charles City	T.	.....	*Missouri.*			Williamsport	T.	.....
Davenport	0	†	Hannibal	0	*	*South Dakota.*		
Des Moines	0	9.5	Kansas City	0	†	Huron	5	13.0
Dubuque	0	‡	St. Joseph	0	*	Pierre	2	17.0
Estherville	2	.....	*Montana.*			Rapid City	T.	.....
Forest City	1	.....	Havre	12	.....	Yankton	T.	10.0
Keokuk	0	0.5	Helena	4	.....	*Utah.*		
Mason City	T.	.....	Kalispell	17	.....	Modena	5	.....
Sioux City	0	‡	Miles City	2	.....	Salt Lake City	5	.....
Maine.			Missoula	7	.....	*Vermont.*		
Bangor	8	11.0	*Nebraska.*			Brattleboro	14	12.0
Eastport	2	0.0	North Platte	T.	.....	Burlington	9	0.0
Gardiner	10	8.0	Omaha	0	*	Northfield	11	.....
Greenville	18	18.0	Valentine	2	.....	St. Johnsbury	9	.....
Lewiston	8	9.0	*Nevada.*			*Virginia.*		
Millinocket	11	.....	Reno	13	0.0	Buchanan	3	.....
Portland	8	0.0	Tonopah	5	.....	Culpeper	5	.....
Van Buren	15	.....	Winnemucca	3	.....	Fredericksburg	2	.....
Maryland.			*New Hampshire.*			Lynchburg	T.	0.0
Easton	2	.....	Bethlehem	7	.....	Staunton	5	.....
Frederick	1	.....	Concord	10	9.0	Williamsburg	1	.....
Oakland	2	.....	Hanover	7	.....	Woodstock	4	.....
Princess Anne	1	.....	Keene	6	.....	*Washington.*		
Massachusetts.			*New Jersey.*			Spokane	8	.....
Adams	10	.....	Bridgeton	T.	.....	Walla Walla	5	.....
Amherst	4	.....	Cape May	T.	1.0	*West Virginia.*		
Boston	1	.....	Tuckerton	T.	.....	Bayard	T.	.....
Concord	5	.....	*New Mexico.*			Charleston	T.	.....
Fitchburg	7	.....	Santa Fe	T.	.....	Elkins	T.	*
Mansfield	2	.....	*New York.*			Hinton	2	.....
Michigan.			Albany	4	4.0	*Wisconsin.*		
Alpena	1	5.0	Angelica	T.	.....	Ashland	7	.....
Big Rapids	T.	.....	Binghamton	T.	.....	Eau Claire	2	.....
Calumet	23	.....	Buffalo	0	†	Grand Rapids	1	.....
Chatham	18	.....	Canton	1	.....	Green Bay	0	9.0
Detroit	0	6.5	De Ruyter	5	.....	La Crosse	0	12.0
Escanaba	2	5.0	Lake Placid	60	.....	Medford	4	.....
Harrisville	2	.....	Oswego	3	4.5	Rhinelander	7	.....
Houghton	24	9.0	Plattsburg	5	.....	Viroqua	T.	.....
Iron Mountain	9	.....	Rochester	T.	†	Wausau	4	11.5
Iron River	12	.....	Rome	4	.....	*Wyoming.*		
Ironwood	24	.....	Saranac Lake	30	.....	Cheyenne	T.	.....
Ludington	T.	8.0	Watertown	2	.....	Lander	2	.....
Marquette	11	*	*North Dakota.*			Sheridan	3	.....
Newberry	11	.....	Bismarck	4	22.0	Yellowstone Park	22	.....
Port Huron	0	6.0	Devils Lake	4	.....			
Rock	10	.....	Williston	5	12.0			
Saginaw	T.	8.0						

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

Albany, N. Y., January 11.—The snow in the Hudson Valley averages 9 inches deep, and in the Mohawk 8 inches. The ice averages 5 inches thick in the Hudson and Mohawk Rivers.

Dubuque, Iowa, January 10.—The ice in the Mississippi River at this point is thin and unsafe to measure.

P. C. DAY, *Climatologist and Chief of Division.*

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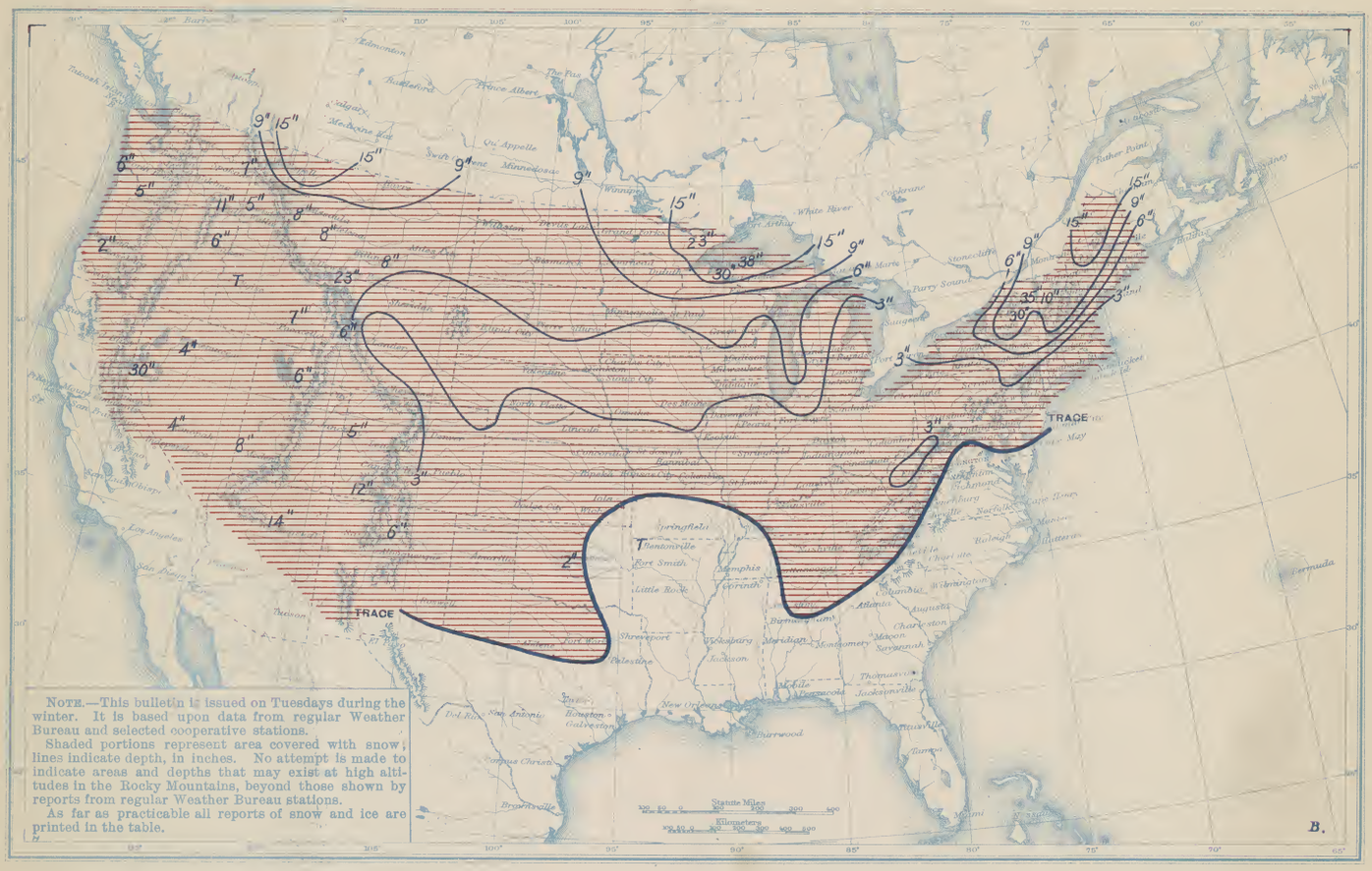

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WASHINGTON, D. C., *January 18, 1916.*

DEPTH OF SNOW.

The storm area over the Southwest at the beginning of the week moved northeastward over the Ohio Valley and lower Lake region during Wednesday and Thursday, and snows and rains were very general in all districts from the Mississippi Valley eastward. The rainfall was quite heavy in portions of the Gulf States and Ohio Valley, and considerable snow fell to the northward and westward of the storm track. Clear and cold weather prevailed for several days near the middle of the week over the districts to eastward of the Rocky Mountains, but to the westward there was more or less rain or snow, the rains being quite heavy at some of the lower elevations of California. During the closing days of the week light snows occurred locally over widely separated areas from the northern boundary to the middle Gulf region, and some unusually heavy rains fell in southern California, with the probability of heavy snows in the adjacent mountains.

Compared with last week the snow covered area is now greatly increased, and the depths over the area covered last week have increased in all except a few localities, mostly in New England. In the Missouri and upper Mississippi Valley districts the increases ranged generally from 2 to 5 inches, while in the mountain regions of the West from 6 to 15 inches or more fell in some districts.

Very general protection was afforded winter grains by the snow cover in the central and northern portions of the grain belt during the severe cold of the past week, but over the southern portions the crop is only slightly protected, and in some districts it remains exposed to the cold. In the western Mountain districts the ground continues snow covered, especially from Montana westward where a considerable depth has now accumulated at the lower levels. The presence of a fairly deep snow cover for several weeks, with severe cold over the northwestern districts, has no doubt been very trying to stock and will probably result in some loss.

In the higher mountains of the West the snowfall so far this winter appears to have been very generally up to the normal, especially in the northern districts and in portions of the mountains of California, where large amounts appear to have accumulated.

ICE IN RIVERS AND HARBORS.

The cold weather that had overspread the Northwest, referred to in the last issue of this bulletin, extended to the eastward and southward during the early days of the week just closed, and by Thursday morning zero temperatures had extended into northern Texas, and freezing weather to the coasts of Texas and Louisiana, while in the Canadian Northwest temperatures nearly 60° below zero had occurred. This cold area gradually moved to the eastward during the following few days, with some moderation, but it again became cold in the Northwest, and during Sunday and Monday another cold wave extended into the central valleys and eastern districts, carrying the line of zero temperature into the Ohio Valley, while freezing temperatures again extended into the coast districts of the west Gulf area, and during Monday night covered the entire Gulf coast region and reached into the northern districts of Florida.

Heavy ice now covers the Missouri River and its tributaries as far south as Kansas City, and similar conditions prevail on the upper Mississippi and its tributaries, with floating ice as far south as Cairo.

In the Northeastern States the ice ranges from 9 inches at Albany to 18 inches in central Maine, and the commercial ice harvest is now beginning in those districts, as well as in other northern localities, where ice is usually gathered. The present cold weather will also probably enable the gathering of the usual winter's supply of ice in the rural districts over much of the middle portions of the country.

The following special reports have been received:

Brattleboro, Vt., January 17.—The ice harvest on the Connecticut River here has begun.

Albany, N. Y., January 18.—The snow in the Hudson Valley averages 7 inches deep, and in the Mohawk 9 inches, the greatest depth reported being 15 inches at Trenton Falls. The ice in the Hudson River averages 8 inches thick, and in the Mohawk 5 inches.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 17, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Alabama.	*Inches*	*Inches*
Anniston	T.	.....
Birmingham	T.	.....
Arizona.		
Flagstaff	14	.....
Colorado.		
Denver	1	.....
Durango	12	.....
Grand Junction	5	.....
Connecticut.		
New Haven	1	0.0
West Cornwall	10	.....
Idaho.		
Lewiston	5	*†
Pocatello	7	.....
Illinois.		
Chicago	1	.....
Peoria	2	8.0
Walnut	3	.....
Indiana.		
Fort Wayne	4	.....
Terre Haute	T.	†
Valparaiso	3	.....
Iowa.		
Charles City	4	.....
Davenport	2	9.0
Des Moines	2	12.5
Dubuque	3	11.0
Estherville	4	.....
Iowa City	4	.....
Keokuk	3	11.5
Sioux City	4	17.0
Kansas.		
Concordia	2	.....
Iola	2	6.5
Ottawa	4	.....
Topeka	2	.....
Kentucky.		
Bowling Green	3	.....
Eubank	2	.....
Lexington	2	.....
Mount Sterling	2	.....
Williamsburg	2	.....
Maine.		
Bangor	5	13.0
Eastport	2	0.0
Gardiner	10	10.0
Greenville	16	18.0
Lewiston	9	11.0
Portland	4	0.0
Van Buren	14	.....
Maryland.		
Baltimore	T.	0.0
Oakland	3	.....
Massachusetts.		
Fitchburg	4	.....
Holyoke	5	.....
Michigan.		
Alpena	3	3.5
Ann Arbor	2	.....
Battle Creek	3	.....
Calumet	33	.....
Detroit	1	8.5
Escanaba	7	12.0
Grand Haven	7	.....
Grand Rapids	3	.....
Houghton	38	11.0
Ironwood	30	.....
Lansing	1	.....
Ludington	6	9.0
Manistee	7	.....
Marquette	17	4.5
Newberry	13	.....
Port Huron	1	8.5
Saginaw	1	10.0
Sault Ste. Marie	11	6.5
Minnesota.	*Inches*	*Inches*
Campbell	7	.....
Duluth	5	22.0
Fort Ripley	11	.....
Mankato	4	.....
Milan	7	.....
Minneapolis	6	.....
Moorhead	8	18.0
St. Paul	4	10.0
Winton	23	.....
Missouri.		
Clinton	1	.....
Columbia	1	.....
Hannibal	1	*†
Kansas City	2	‡
St. Joseph	2	9.0
St. Louis	T.	†
Montana.		
Billings	8	.....
Havre	12	.....
Helena	8	.....
Kalispell	17	.....
Miles City	7	.....
Missoula	8	.....
Nebraska.		
Alliance	6	.....
Lincoln	2	.....
North Platte	1	.....
Omaha	4	15.5
Valentine	3	.....
Nevada.		
Reno	30	0.0
Tonopah	4	.....
Winnemucca	4	.....
New Hampshire.		
Bethlehem	6	.....
Concord	7	12.0
Durham	5	.....
New Jersey.		
Bridgeton	2	.....
Cape May	T.	1.5
Long Branch	4	.....
Sandy Hook	1	0.0
Trenton	T.	*†
New Mexico.		
Santa Fe	6	.....
New York.		
Albany	4	9.0
Beaver River	30	.....
Bouckville	7	.....
Buffalo	4	4.0
Canton	1	.....
Cutchogue	2	.....
Lake Placid	35	.....
Ogdensburg	7	.....
Oswego	8	0.0
Rochester	1	⅔
Roslyn	1	.....
Saranac Lake	31	.....
Syracuse	1	.....
Watertown	4	.....
North Dakota.		
Bismarck	6	25.5
Devils Lake	4	.....
Williston	6	16.0
Ohio.		
Canton	1	.....
Cincinnati	1	0.0
Cleveland	1	3.0
Dayton	T.	*†
Gallipolis	1	.....
McConnelsville	1	.....
Sandusky	1	5.0
Toledo	1	4.0
Wauseon	2	.....
Youngstown	1	.....
Oklahoma.	*Inches*	*Inches*
Oklahoma	2	.....
Oregon.		
Baker	6	.....
Portland	5	*
Roseburg	2	.....
Pennsylvania.		
Allentown	1	.....
Coatesville	2	.....
Drifton	1	.....
Erie	1	4.5
Greensboro	1	.....
Greenville	2	.....
Harrisburg	1	†
Indiana	2	.....
Parkers Landing	3	.....
Philadelphia	2	0.0
Pittsburgh	1	†
Reading	T.	0.0
Scranton	3	.....
Somerset	2	.....
Warren	1	.....
Rhode Island.		
Block Island	1	0.0
Kingston	1	.....
Providence	T.	0.0
South Dakota.		
Huron	8	19.0
Pierre	6	21.0
Rapid City	4	.....
Yankton	4	15.0
Tennessee.		
Chattanooga	T.	0.0
Knoxville	T.	0.0
Nashville	T.	0.0
Texas.		
Abilene	T.	.....
Amarillo	1	.....
Dallas	T.	.....
Palestine	T.	.....
Utah.		
Modena	8	.....
Salt Lake City	6	.....
Vermont.		
Brattleboro	12	13.0
Burlington	7	0.0
Northfield	10	.....
St. Johnsbury	10	.....
Wells River	10	.....
Washington.		
North Head	6	.....
Spokane	7	.....
Walla Walla	11	.....
West Virginia.		
Bayard	2	.....
Charleston	3	.....
Elkins	0	*
Fairmont	2	.....
Hinton	1	.....
Parkersburg	1	0.0
Rowlesburg	4	.....
Wisconsin.		
Ashland	15	.....
Brodhead	6	.....
Eau Claire	6	.....
Green Bay	3	10.5
Madison	3	.....
Medford	6	.....
Milwaukee	3	0.0
Viroqua	4	.....
Wausau	8	15.0
Wyoming.		
Cheyenne	1	.....
Lander	1	.....
Sheridan	4	.....
Yellowstone Park	23	.....

*Shore ice. †Floating ice. ‡Ice gorged. ⅔Measurement impracticable. T. indicates trace.

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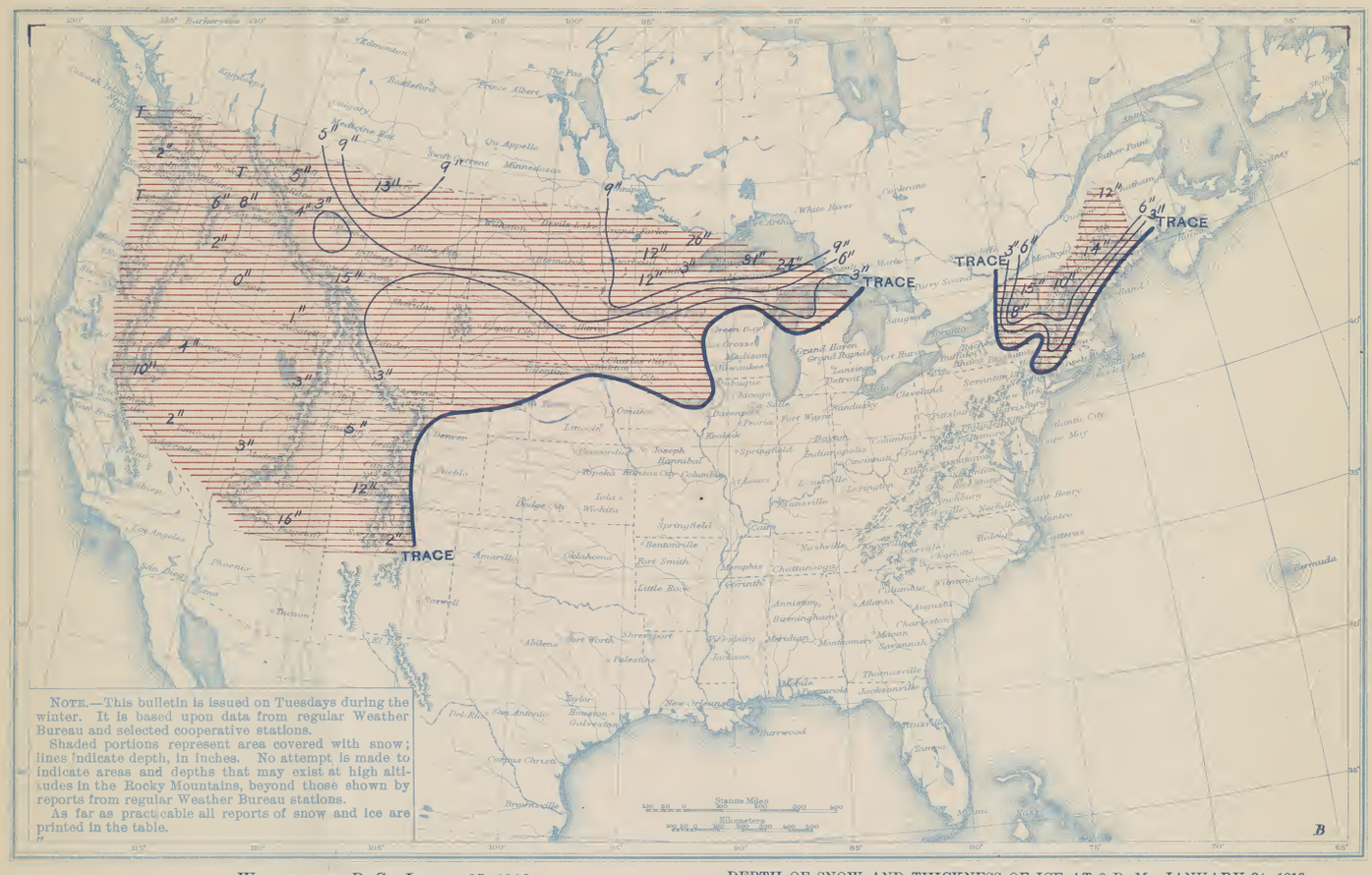
SNOW AND ICE BULLETIN.



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As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *January 25, 1916.*

DEPTH OF SNOW.

The rain and snow area over the far Southwest, referred to in last week's bulletin, gradually dissipated during the early days of the present week, but the heavy rains and melting snows produced high waters in portions of the Colorado River and other streams of the Southwest, and considerable damage to irrigation works in that region is reported.

Only widely scattered precipitation occurred in other portions of the country during the early part of the week, but by Friday a storm of considerable intensity had moved to the lower Missouri Valley, and heavy rains had set in from Texas northeastward to the Lake region. During the following two days this storm moved to the Canadian Maritime Provinces, and precipitation therefrom was general over the entire eastern half of the country. In portions of the Lake region, central Mississippi and lower Ohio Valleys, and southern Plains region the rainfall was unusually heavy. Severe floods resulted in some of the smaller streams, and in portions of northern Illinois much damage occurred.

During the closing days of the week fair weather prevailed over most districts, except in the far Northwest, where some heavy rains occurred near the coast, and it is probable considerable snow fell in the nearby mountains.

On account of the prevailing warmer weather over nearly all districts during the past week, and the occurrence of heavy rains in the central valleys and Lake region, there has been a very pronounced diminution in the extent and depth of the snow cover in nearly all districts where there was a cover last week.

The greater part of the winter grain-growing area to eastward of the Rocky Mountains is now bare, but a considerable covering continues in the spring wheat region.

In the districts from the Rocky Mountains westward there has been a marked reduction in the depth of the snow cover at some of the lower elevations, but it is improbable there has been any decrease in the high ranges where the usual winter supply is stored.

Detailed reports from points in the high mountains of the West indicate that at the end of December the accumulated snowfall was far above the normal amount in the more northern districts, in fact in portions of Idaho and adjoining States it is reported as the heaviest so far in the season in many years, and its condition favors late melting.

In the central and southern districts the amounts nearly everywhere appear close to or above the normal.

ICE IN RIVERS AND HARBORS.

With the disappearance off the Atlantic coast of the severe cold wave, referred to in last week's issue, during the early part of the week just closed, warmer weather set in over nearly all portions of the country, and by the middle of the week temperatures were much above the normal in nearly all eastern districts.

During the latter part of the week cold weather again appeared in the Canadian Northwest, and during Saturday and Sunday it overspread the northern districts between the Rocky Mountains and upper Lakes, but in most other districts the weather continued moderately warm for midwinter.

At the close of the week unseasonably warm weather for the period of the year prevailed over most eastern and southern districts, but in the far Northwest colder weather was again advancing from the Canadian Provinces and lower temperatures had already extended well into the Missouri Valley region.

With the change to warmer weather during the past week and the occurrence of some heavy rains in the central valleys and Lake region, but little additional ice formed, except over the more northern districts.

In the upper Missouri and extreme upper Mississippi Rivers and their tributaries the increases ranged up to 8 inches, but in the middle portions of the Missouri a large amount of ice disappeared during the week, and small quantities disappeared from the Mississippi and its tributaries from Cairo northward to Davenport.

Most of the small amount of ice previously reported on the Ohio and its principal tributaries, as well as that on the main streams of the Atlantic coast south of the Hudson, disappeared during the week. No material change occurred in the ice conditions over the rivers of northern New York and in New England, where the ice harvest continued under favorable conditions until the latter part of the week, when warmer weather interfered with operations.

Considerable ice disappeared from the lower Lakes during the week and only a few of the harbors now remain closed, but in the upper Lakes there was a very general but slight increase over the amounts reported last week.

The following special reports have been received:

Hartford, Conn., January 25.—The mildness of temperature has somewhat reduced the depth of snow in the Connecticut Valley, but the ice still holds.

Albany, N. Y., January 25.—The snow averages 4 inches deep in the Hudson and Mohawk Valleys, and the ice in the rivers averages 8 inches thick. The ice harvest was in full blast last week till interrupted by mild weather.

Dubuque, Iowa, January 24.—The measurement of ice in the Mississippi River here is impracticable, as the river is open along the shore. The ice in the channel is believed to be from 8 to 14 inches thick.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 24, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*	*Michigan*—Contd.	*Inches*	*Inches*	*New York*—Contd.	*Inches*	*Inches*
Flagstaff	16	.....	Rock	10	.....	De Ruyter	T.	.....
Colorado.			Saginaw	0	3.0	Lowville	8	.....
Durango	12	.....	Sault Ste. Marie	13	7.5	Oswego	0	0.5
Grand Junction	5	.....	*Minnesota.*			Rochester	0	*
Connecticut.			Campbell	5	.....	Roxbury	T.	.....
Hartford	0	*	Collegeville	11	.....	Saranac Lake	15	.....
West Cornwall	4	.....	Duluth	3	25.0	Saratoga Springs	5	.....
Idaho.			Fort Ripley	12	.....	*North Dakota.*		
Lewiston	8	*†	Grand Meadow	1	.....	Bismarck	6	34.0
Pocatello	1	.....	Hinckley	10	.....	Devils Lake	5	.....
Illinois.			Leech Lake Dam	12	.....	Williston	6	18.5
Peoria	0	†	Mankato	2	.....	*Ohio.*		
Iowa.			Milan	10	.....	Sandusky	0	2.0
Charles City	T.	.....	Minneapolis	4	.....	Toledo	0	†
Davenport	0	8.0	Moorhead	8	24.0	*Oregon.*		
Dubuque	T.	‡	St. Paul	3	11.0	Baker	2	.....
Iowa City	T.	.....	Thief River Falls	11	.....	Portland	T.	0.0
Keokuk	0	8.5	Winton	26	.....	*Pennsylvania.*		
Mason City	T.	.....	*Missouri.*			Drifton	T.	.....
Pocahontas	1	.....	Hannibal	0	†	Harrisburg	0	†
Sioux City	T.	‡	Kansas City	0	†	*South Dakota.*		
Maine.			St. Joseph	0	*	Huron	6	19.5
Bangor	T.	16.0	St. Louis	0	†	Pierre	2	25.0
Gardiner	3	10.0	*Montana.*			Rapid City	T.	.....
Greenville	14	21.0	Billings	6	.....	Yankton	T.	16.0
Lewiston	3	13.0	Havre	13	.....	*Utah.*		
Millinocket	12	.....	Helena	T.	.....	Modena	3	.....
Van Buren	12	.....	Kalispell	5	.....	Salt Lake City	3	.....
Massachusetts.			Miles City	7	.....	*Vermont.*		
Amherst	T.	.....	Missoula	4	.....	Bellows Falls	6	.....
Concord	T.	.....	*Nebraska.*			Brattleboro	6	14.0
Fitchburg	T.	.....	Alliance	3	.....	Burlington	T.	0.0
Holyoke	2	.....	Halsey	2	.....	Northfield	6	.....
Turners Falls	4	.....	North Platte	T.	.....	St. Johnsbury	10	.....
Michigan.			Omaha	0	‡	Wells River	8	.....
Alpena	T.	8.0	Valentine	2	.....	White River Junc.	6	.....
Calumet	28	.....	*Nevada.*			*Washington.*		
Chatham	24	.....	Reno	10	0.0	Seattle	2	0.0
Detroit	0	7.5	Tonopah	2	.....	Spokane	T.	.....
Escanaba	4	13.0	Winnemucca	4	.....	Tatoosh Island	T.	.....
Houghton	31	10.0	*New Hampshire.*			Walla Walla	6	.....
Iron Mountain	10	.....	Bethlehem	2	.....	*Wisconsin.*		
Iron River	8	.....	Concord	1	14.0	Green Bay	0	9.0
Ironwood	30	.....	Hanover	6	.....	La Crosse	0	16.0
Ludington	T.	9.0	*New Mexico.*			Wausau	5	14.5
Mancelona	6	.....	Santa Fe	2	.....	*Wyoming.*		
Marquette	13	5.5	*New York.*			Cheyenne	T.	.....
Newberry	9	.....	Albany	0	‡	Lander	1	.....
Port Huron	0	6.0	Buffalo	0	4.5	Sheridan	2	.....
			Canton	T.	.....	Yellowstone Park.	15	.....

* Shore ice. † Floating ice. ‡ Ice gorged. ‡ Measurement impracticable. T. indicates trace.

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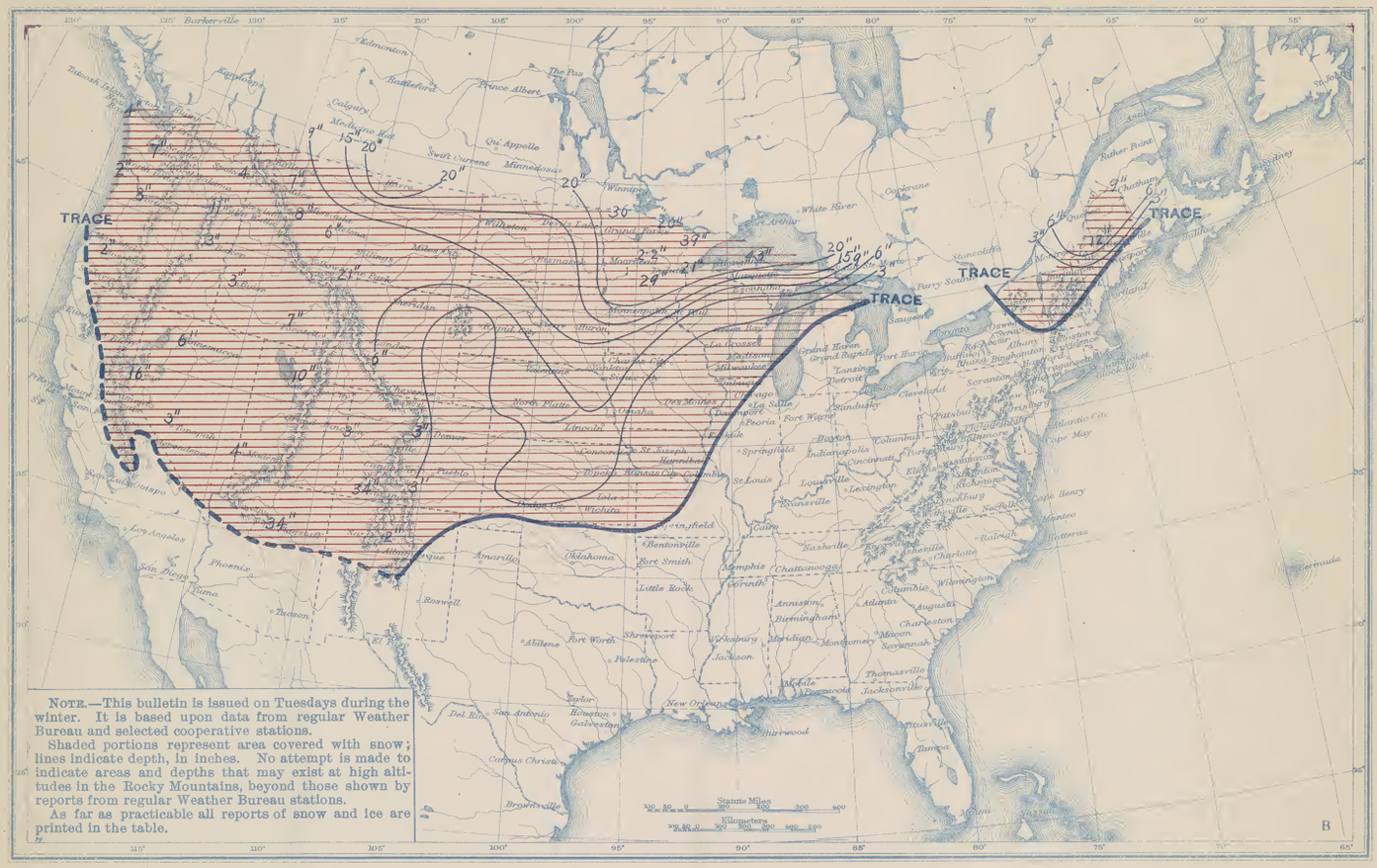
SNOW AND ICE BULLETIN.



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As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *February 1, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

Not in many years have the contrasts in weather conditions obtaining over the various portions of the country been so marked as during the week just ended.

In the Northwest, especially in the Dakotas, Montana, and adjoining States, the coldest weather of recent years has prevailed, while in the South and East the week was warm and springlike throughout.

Low-pressure areas moving persistently from the Pacific coast to the southern Plains region and thence northeastward to the Great Lakes effectively checked the southeastward progress of the cold area in the Northwest, while high pressure over the South Atlantic States caused warm southerly winds and generally fair weather in the Southeastern States.

The week was marked by continuous cloudy weather and much heavy precipitation in the central valleys, mostly in the form of snow from the upper Lakes westward and rain in other districts. The additional rain, falling on soil full of moisture from the heavy rains of the preceding week and with streams already high, caused severe floods in many tributaries of the Ohio and Mississippi Rivers, and the main streams are now at flood stage or above at numerous points. Continued heavy rains in the far Southwest, especially in southern California, caused high waters, and much loss of life and property damage occurred in connection with the bursting of a large storage reservoir in the mountains near San Diego.

DEPTH OF SNOW.

From the Great Lakes westward and southwestward the depth and the extent of the snow cover increased considerably over those prevailing last week. In the upper Lake region and thence westward the increase ranged up to 18 inches and similar or greater increases are reported from local points in the Plateau and Rocky Mountain districts.

A fairly good depth of snow now covers the ground over much of the winter grain growing region to westward of the Mississippi, affording good protection from the severe cold that prevailed during the week. Over the northwestern districts where the ground has been snow covered for a considerable period, the intense cold of the past week, with additional snowfall, has doubtless been very severe on stock exposed on the ranges.

ICE IN RIVERS AND HARBORS.

Compared with last week there has been a general decrease in the amount of ice in all districts from the middle Mississippi Valley and Lake Michigan eastward. In the middle and upper Missouri and upper Mississippi and their tributaries there was some increase in the ice thickness, as well as in the Lake Superior region, and at a few points in New England.

The week was favorable for the gathering of ice in the Northwestern districts, but in New England warmer weather and rains probably interfered with the harvest, while in the Hudson the ice was practically all moved out and none is reported on the rivers to the southward or in the Ohio and its tributaries.

Compared with the same period in 1915 there is now markedly less ice in the lower Lake region, but elsewhere where ice may be expected the amounts are not greatly different.

The following special reports have been received:

Brattleboro, Vt., January 31.—There is no snow in the Connecticut Valley here, but there is from 2 to 3 feet of snow in the wood roads and on the hills.

Hartford, Conn., February 1.—The Connecticut Valley is practically bare from Wells River southward. Several feet of snow remain in the upper mountains. Streams are high, though there are no flood conditions.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 31, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	34	.....
Colorado.		
Denver	3	.....
Durango	34	.....
Grand Junction	3	.....
Pueblo	2	.....
Idaho.		
Boise	3	.....
Pocatello	7	.....
Illinois.		
Oregon	2	.....
Iowa.		
Atlantic	2	.....
Boone	5	.....
Carroll	4	.....
Charles City	2	.....
Creston	1	.....
Davenport	2	*
Des Moines	2	16.0
Dubuque	1	⅔
Estherville	6	.....
Iowa City	2	.....
Keokuk	T.	8.0
Pocahontas	6	.....
Sioux City	8	22.0
Kansas.		
Concordia	4	.....
Dodge City	3	.....
Ellinwood	6	.....
Garden City	3	.....
Iola	2	*
Manhattan	2	.....
Marion	4	.....
Medicine Lodge	2	.....
Oberlin	T.	.....
Ottawa	4	.....
Topeka	2	.....
Wichita	1	.....
Maine.		
Bangor	T.	13.0
Gardiner	T.	9.0
Greenville	12	27.0
Lewiston	⅔	11.0
Millinocket	12	.....
Van Buren	9	.....
Massachusetts.		
Adams	T.	.....
Michigan.		
Alpena	1	*†
Big Rapids	3	.....
Cadillac	2	.....
Calumet	39	.....
Chatham	23	.....
Detroit	0	3.0
Escanaba	4	13.0
Houghton	43	13.5

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Contd.	*Inches*	*Inches*
Iron Mountain	13	.....
Ironwood	36	.....
Ludington	1	6.0
Mackinaw	2	.....
Manistee	2	.....
Marquette	18	2.0
Newberry	12	.....
Rock	13	.....
Sault Ste. Marie	19	11.0
Minnesota.		
Campbell	23	.....
Collegeville	25	.....
Duluth	21	28.0
Fort Ripley	29	.....
Grand Meadow	2	.....
Hinckley	23	.....
International Falls	20	.....
Leech Lake Dam	22	.....
Mankato	8	.....
Milan	16	.....
Minneapolis	15	.....
Moorhead	19	26.0
Roseau	36	.....
St. Paul	15	14.0
Thief River Falls	22	.....
Winton	39	.....
Missouri.		
Brunswick	1	.....
Columbia	1	.....
Hannibal	1	‡
Kansas City	2	‡
St. Joseph	1	*
Springfield	1	.....
Unionville	2	.....
Montana.		
Havre	22	.....
Helena	6	.....
Kalispell	7	.....
Missoula	8	.....
Nebraska.		
Alliance	2	.....
Auburn	4	.....
Central City	4	.....
Guide Rock	4	.....
Halsey	5	.....
Imperial	3	.....
Lincoln	6	.....
McCook	1	.....
North Platte	4	.....
Omaha	4	19.0
Ravenna	3	.....
Valentine	5	.....
Nevada.		
Reno	16	0.0
Tonopah	3	.....
Winnemucca	6	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
New Hampshire.	*Inches*	*Inches*
Hanover	1	.....
Keene	T.	.....
New Mexico.		
Santa Fe	2	.....
New York.		
Albany	T.	0.0
Buffalo	0	†
Canton	T.	.....
Saranac Lake	2	.....
North Dakota.		
Bismarck	13	37.0
Devils Lake	10	.....
Williston	14	20.5
Oregon.		
Baker	3	.....
Portland	8	0.0
Roseburg	2	.....
Pennsylvania.		
Drifton	T.	.....
South Dakota.		
Huron	13	21.5
Pierre	8	27.0
Rapid City	1	.....
Yankton	6	18.0
Utah.		
Modena	4	.....
Salt Lake City	10	.....
Vermont.		
Brattleboro	0	13.0
Northfield	T.	.....
St. Johnsbury	2	.....
Washington.		
North Head	2	.....
Seattle	7	0.0
Spokane	4	.....
Tatoosh Island	4	.....
Walla Walla	11	.....
Wisconsin.		
Barron	19	.....
Brodhead	3	.....
Delavan	2	.....
Green Bay	3	8.5
La Crosse	0	16.5
Madison	1	.....
Medford	4	.....
Milwaukee	2	0.0
Viroqua	1	.....
Wausau	4	15.0
Wyoming.		
Cheyenne	2	.....
Sheridan	6	.....
Yellowstone Park	21	.....

*Shore ice. †Floating ice. ‡Ice gorged. ⅔Measurement impracticable. T. indicates trace.

Albany, N. Y., February 1.—The snow in the Hudson Valley averages only a trace. In the Mohawk it averages 2 inches deep from Schenectady to Tribes Hill, with traces elsewhere. Most of the ice moved out of the rivers on the 28th.

Wausau, Wis., January 31.—Ice harvesting is well under way in the Wisconsin River here.

P. C. DAY, *Climatologist and Chief of Division.*

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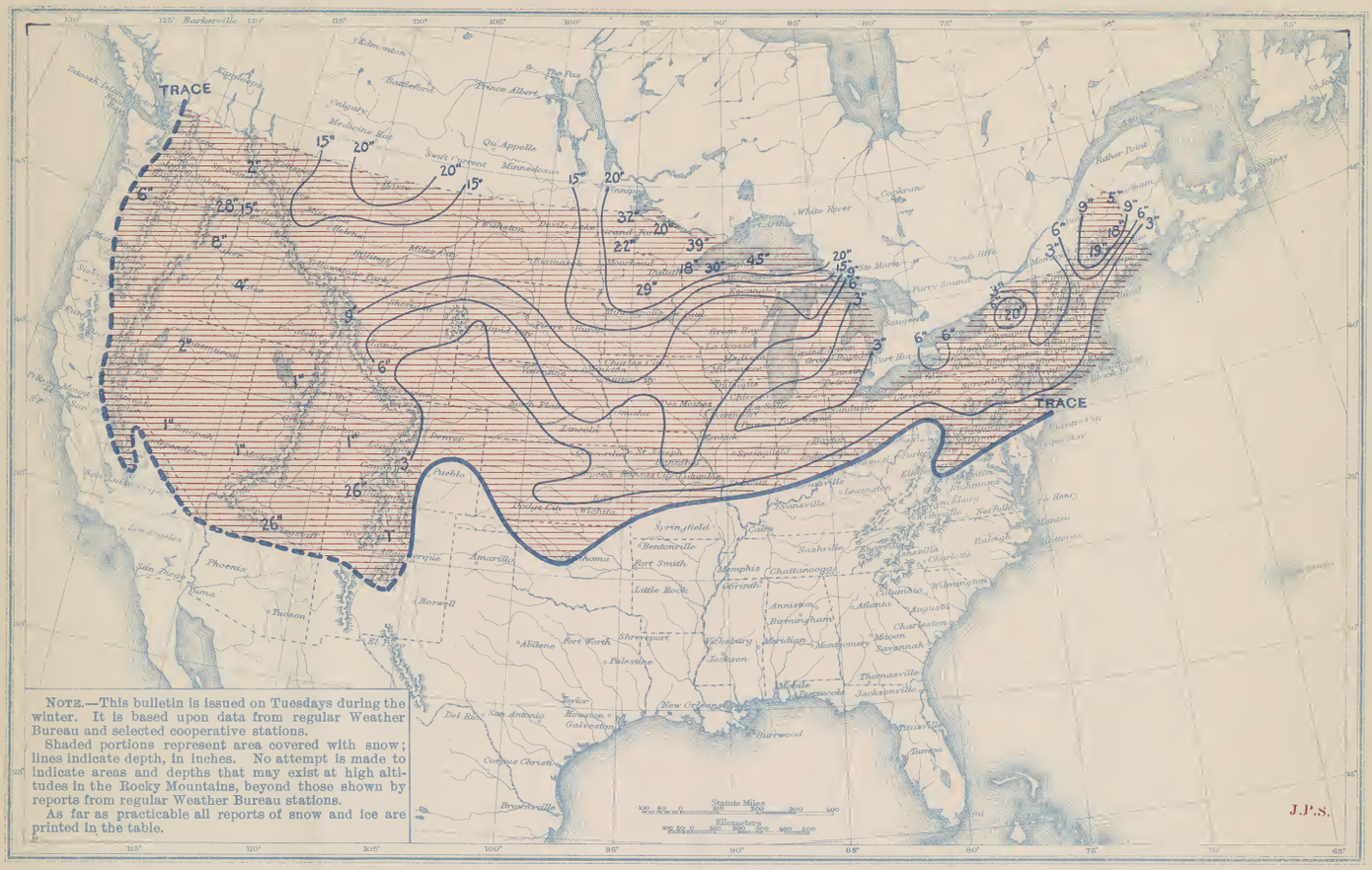

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As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *February 8, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

Unlike the week preceding, the week just closed was not marked by unusual extremes of weather conditions. The areas of low pressure that had persisted for a considerable period over the region from Texas to the Great Lakes finally moved to the northeastward and colder weather overspread all eastern districts during the first few days of the week just closed. At the same time it continued cold in the Northwest, but with a tendency toward higher temperatures as the week advanced. By Friday an extensive area of high pressure had overspread the interior portions of the country and typical winter weather prevailed over most districts, the line of freezing extending to the east Gulf coast and into northern Florida. Rather general snows occurred over the northeastern districts during the early days of the week and some heavy snowfalls occurred in the far Northwest. In the latter district, rain, snow, and sleet prevailed during much of the week, and large amounts of snow fell over the lower elevations, especially in Washington, Idaho, and Oregon, where traffic was much delayed. During Saturday, snows were general in the Lake region, continuing during Sunday and Monday over the upper Ohio Valley, and thence northeastward to New England. However the amounts were generally light. At the close of the week, fair and cold weather prevailed in most districts, except along the northern boundary where the weather was partly cloudy with local rains or snows.

DEPTH OF SNOW.

Over practically all northern districts, from the Rocky Mountains eastward, there was an increase in the depth of the snow during the past week, and a heavy covering now exists from the Lake region westward. In the Lake Superior region the depth ranges from 2 to 4 feet. The depth is only slightly less over much of Minnesota, while a heavy covering still persists in the Dakotas, Montana, and thence westward to the plains of Washington and Oregon where an unusual depth has prevailed for a number of weeks.

In the winter-grain regions snow covers a considerable area that was bare last week, and a large portion of the area is now under cover, although there is much ice mixed with the snow in the districts to westward of the Mississippi, and some apprehension is felt that injury may result. Over the North Atlantic States the ground is now covered from West Virginia and Maryland northward, but the depths are mostly slight, except at points in northern New York and over the interior of Maine.

From Kansas and Nebraska westward there was a general reduction in the depth previously reported, and a considerable body of snow appears to have melted over the coast districts of Oregon and Washington.

In some of the northern mountain districts there appears to have been considerable additional snow during the week, and the amounts stored in the high ranges must now be greatly in excess of the average.

Reports up to the end of January indicate that the snow throughout the mountain districts is nearly everywhere equal to or above the average, and that its condition at that time indicated a plentiful supply of water for all purposes during the coming summer.

ICE IN RIVERS AND HARBORS.

The generally cold weather of the past week over the northern districts caused additions of from 1 to 5 inches in the ice thickness over the rivers and lakes of those regions. The Missouri is now heavily ice covered from Omaha northward and the Mississippi from Keokuk northward. The harbors of the upper Lakes are likewise heavily ice-bound, and considerable new ice formed on the lower Lakes. The Ohio remains free of ice, except in its upper reaches, and similar conditions prevail on the rivers of the Atlantic coast from the Hudson southward. Not much change occurred in the conditions over New England, but ice of moderate thickness covers most of the interior streams and lakes.

The following special reports have been received:

Hartford, Conn., February 8.—The depth of snow in the Connecticut Valley averages 4 inches, with a quite equable distribution over the entire area.

Wausau, Wis., February 7.—The ice harvest on the Wisconsin River here is completed.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 7, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	26	.....
Colorado.		
Durango	26	.....
Grand Junction	1	.....
Connecticut.		
Hartford	5	0.0
New Haven	4	0.0
West Cornwall	5	.....
Idaho.		
Boise	4	.....
Lewiston	15	*†
Illinois.		
Chicago	2	.....
Hoopeston	4	.....
Montrose	5	.....
Oregon	5	.....
Peoria	2	4.0
Springfield	6	.....
Indiana.		
Bloomington	4	.....
Fort Wayne	3	.....
Indianapolis	4	.....
La Fayette	4	.....
Marion	3	.....
Richmond	3	.....
Terre Haute	4	0.0
Iowa.		
Albia	6	.....
Charles City	10	.....
Creston	3	.....
Davenport	6	7.0
Des Moines	4	16.5
Dubuque	6	15.0
Estherville	9	.....
Iowa City	5	.....
Keokuk	4	11.0
Mason City	6	.....
New Hampton	6	.....
Pocahontas	10	.....
Sioux City	7	24.0
Kansas.		
Concordia	2	.....
Ellinwood	5	.....
Iola	1	3.0
Manhattan	2	.....
Marion	4	.....
Ottawa	4	.....
Topeka	3	.....
Wichita	T.	.....
Maine.		
Bangor	2	14.0
Eastport	T.	0.0
Gardiner	3	7.0
Greenville	19	23.0
Millinocket	18	.....
Portland	1	0.0
Van Buren	5	.....
Maryland.		
Frederick	1	.....
Massachusetts.		
Adams	2	.....
Boston	4	.....
Fitchburg	5	.....
Michigan.		
Alpena	3	8.0
Ann Arbor	2	.....
Battle Creek	3	.....
Big Rapids	6	.....
Cadillac	5	.....
Calumet	45	.....
Chatham	27	.....
Detroit	1	6.0
Escanaba	3	19.0
Grand Haven	3	.....
Grand Rapids	5	.....
Houghton	49	13.5
Michigan—Contd.		
Iron Mountain	13	.....
Iron River	12	.....
Ironwood	28	.....
Ludington	4	8.5
Mancelona	18	.....
Manistee	6	.....
Marquette	17	*
Newberry	13	.....
Port Huron	3	5.0
Rock	12	.....
Saginaw	2	‡
St. Ignace	4	.....
Sault Ste. Marie	20	14.0
Minnesota.		
Duluth	18	30.0
Milan	16	.....
Minneapolis	14	.....
Moorhead	18	27.0
Pipestone	9	.....
Roseau	32	.....
St. Paul	15	15.0
Winton	39	.....
Missouri.		
Brunswick	6	.....
Columbia	6	.....
Hannibal	5	*†
Kansas City	4	†
Maryville	5	.....
St. Joseph	3	*
St. Louis	3	†
Trenton	6	.....
Montana.		
Billings	10	.....
Havre	24	.....
Helena	8	.....
Miles City	14	.....
Missoula	16	.....
Nebraska.		
Alliance	2	.....
Lincoln	7	.....
North Platte	2	.....
Omaha	5	21.0
Valentine	5	.....
Nevada.		
Tonopah	1	.....
Winnemucca	2	.....
New Hampshire.		
Bethlehem	2	.....
Concord	3	10.0
Durham	6	.....
Keene	3	.....
New Jersey.		
Newark	1	.....
Phillipsburg	3	.....
Sandy Hook	T.	0.0
Trenton	T.	0.0
New Mexico.		
Santa Fe	T.	.....
New York.		
Albany	1	0.0
Beaver River	20	.....
Buffalo	9	7.0
Canton	6	.....
Cooperstown	3	.....
De Ruyter	2	.....
Herkimer	2	.....
Ithaca	1	.....
Malone	2	.....
New York	1	.....
Oswego	5	3.0
Plattsburg	1	.....
Rome	3	.....
Saranac Lake	6	.....
Saratoga Springs	3	.....
Syracuse	2	.....
Watertown	4	.....
North Dakota.		
Bismarck	12	37.0
Devils Lake	9	.....
Williston	14	22.5
Ohio.		
Ashland	3	.....
Canton	3	.....
Cincinnati	T.	0.0
Cleveland	4	6.0
Columbus	1	.....
Dayton	3	0.0
Killbuck	2	.....
Marion	4	.....
Sandusky	3	3.5
Tiffin	5	.....
Toledo	2	3.0
Wauseon	2	.....
Oklahoma.		
Oklahoma	T.	.....
Oregon.		
Baker	8	.....
Portland	6	0.0
Pennsylvania.		
Allentown	1	.....
Drifton	5	.....
Erie	2	3.0
Harrisburg	1	0.0
Lawrenceville	4	.....
Meadville	3	.....
Parkers Landing	3	.....
Philadelphia	T.	0.0
Pittsburgh	T.	†
Reading	T.	0.0
Scranton	2	.....
Sunbury	2	.....
Towanda	2	.....
Warren	4	.....
Rhode Island.		
Kingston	1	.....
Narragansett Pier	T.	.....
Providence	3	0.0
South Dakota.		
Huron	14	22.5
Pierre	8	29.0
Rapid City	1	.....
Yankton	7	20.0
Utah.		
Modena	1	.....
Salt Lake City	1	.....
Vermont.		
Brattleboro	3	10.0
Burlington	2	0.0
Northfield	1	.....
St. Johnsbury	1	.....
Virginia.		
Woodstock	1	.....
Washington.		
Spokane	2	.....
Walla Walla	28	.....
West Virginia.		
Charleston	T.	.....
Elkins	T.	0.0
Wisconsin.		
Ashland	30	.....
Brodhead	9	.....
Eau Claire	6	.....
Green Bay	6	10.0
La Crosse	5	18.5
Madison	6	.....
Medford	5	.....
Milwaukee	5	0.0
Wausau	6	20.0
Wyoming.		
Cheyenne	T.	.....
Lander	5	.....
Sheridan	9	.....
Yellowstone Park	20	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

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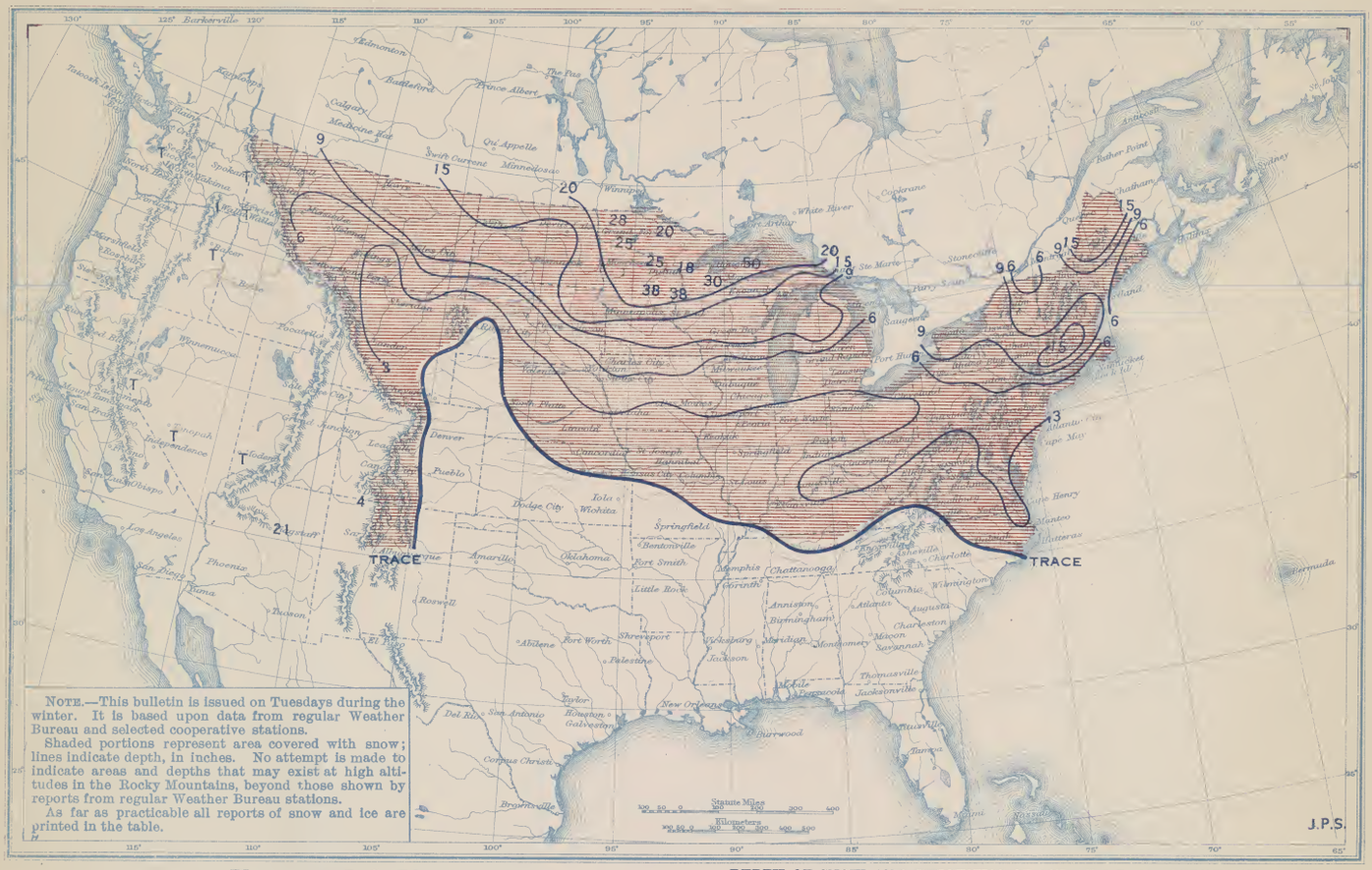
SNOW AND ICE BULLETIN.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *February 15, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

Early in the week much colder weather overspread the northern districts to eastward of the Rocky Mountains, the temperature falling to 20° or more below zero in North Dakota, but unseasonably warm weather prevailed in the North Pacific States and moderate temperatures continued in the South. With the continuation of high pressure over northern districts cold weather prevailed in those regions during the greater part of the week and by Sunday it had overspread much of the South with freezing temperature by Monday morning as far south as northwestern Florida. At the same time it had grown much colder in the Northeastern States, the temperature falling to nearly 40° below zero in northern New York. At the close of the week much higher temperature had overspread the Northwest, but it continued colder than normal over the eastern districts, the early morning temperatures of this date ranging from slightly below freezing at Jacksonville, Fla., to nearly 20° below zero in northern New England. In the far West the weather continued warm for the season of the year.

Local snows prevailed during the early part of the week over northern districts, and some fairly heavy rains occurred over the Atlantic Coast States and in the far West, but fair weather obtained over most central and southern districts throughout the week. By Saturday low pressure had developed over the Ohio Valley, and during Sunday it moved to the Atlantic coast districts, attended by moderately heavy snows over the Northern States from the Lake region and Ohio Valley eastward, and by rains and snows to the southward. This storm moved off the Atlantic coast by Monday, and at this writing clear weather prevails in practically all parts of the country.

DEPTH OF SNOW.

The storm of the latter part of the week gave a considerable covering of snow from the Ohio Valley and Middle Atlantic States northeastward to New England, the fall amounting to 12 inches or more at points in southern New England. There was an increase during the week of from 2 to 6 inches or more in the Lake region and thence westward to the Dakotas, but elsewhere the covering of the week preceding has been very materially reduced.

Much of the snow cover in the winter grain growing region disappeared during the week and only slight protection is now afforded the grain, except in the more northern districts.

In the far Northwest high temperatures and warm rains carried off the greater part of the heavy snow covering that had prevailed for a number of weeks at the lower levels, affording much relief to stock of all kinds which had suffered severely from the deep snow and continued cold.

It is improbable that any material additions were made during the week to the stock of snow stored in the high mountains of the West, but the latest reports indicate that the falls have nearly everywhere been unusually heavy so far during the winter. In fact reports from points in the northern Rocky Mountain region and in portions of the Sierra Nevada indicate that the deepest snows ever recorded in those regions now cover the ground.

ICE IN RIVERS AND HARBORS.

Further increases in ice thickness were reported from the streams and lakes of all northern districts, and especially so from the Great Lakes, where they ranged from 2 to 7 inches. Unusually heavy ice now covers the Missouri River from Omaha northward and the ice in the Mississippi ranges from 12 inches at Keokuk to nearly 2 feet at La Crosse.

The harbors of the Lake region are now practically all closed, the ice ranging from 6 to 10 inches in the lower Lakes, while it is 2 feet or more thick at points on Lake Superior. Some ice is reported from the upper tributaries of the Ohio, but there is still practically no ice on the main streams of the Atlantic coast south of the Hudson. In New England, the streams and lakes are covered with ice of considerable thickness, and favorable weather for harvesting prevailed during portions of the week.

P. C. DAY, *Climatologist and Chief of Division.*

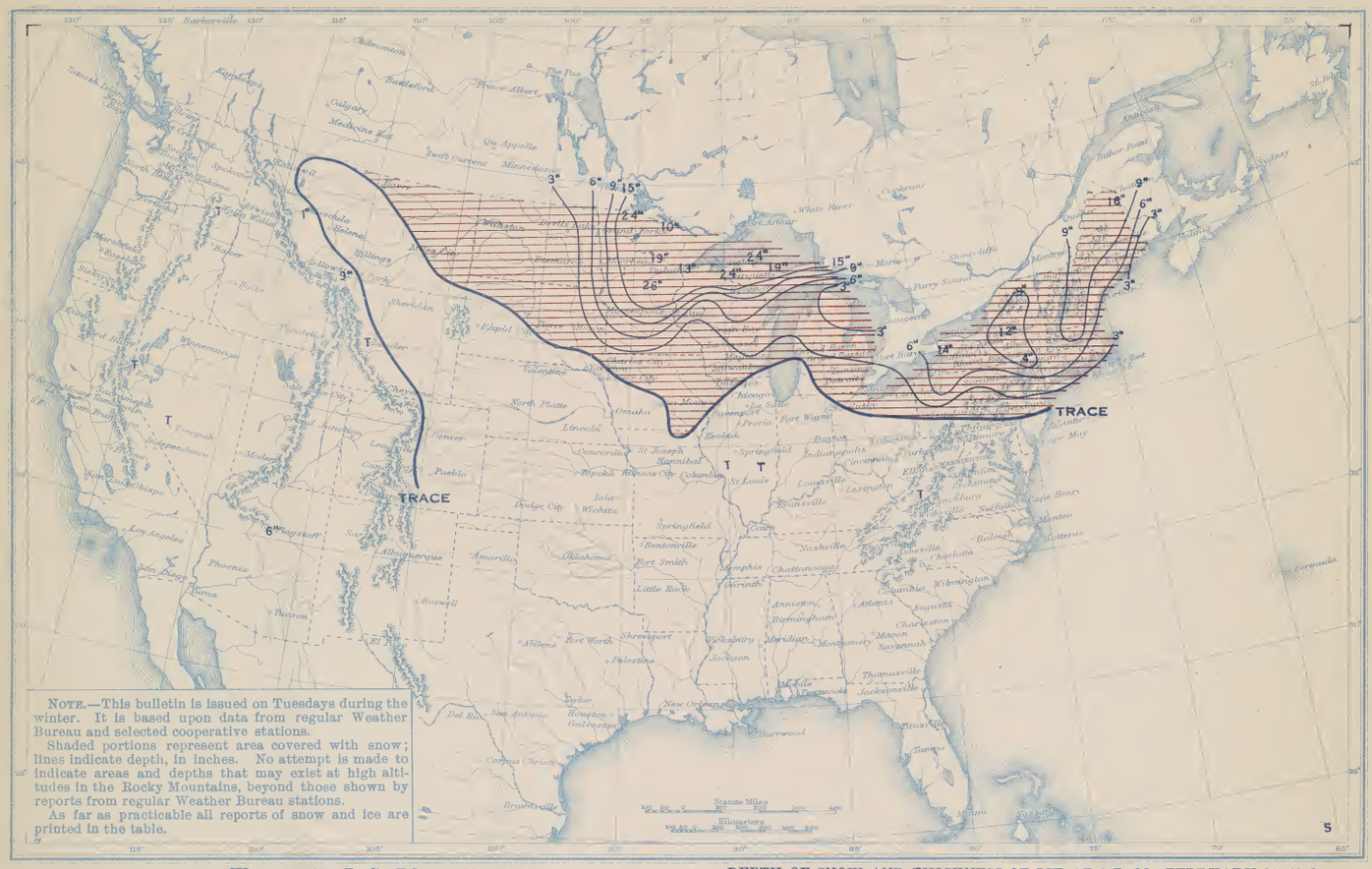
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 14, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	21	.....
Colorado.		
Durango	4	.....
Connecticut.		
Hartford	16	*
New Haven	11	0.0
West Cornwall	18	.....
Delaware.		
Millsboro	2	.....
Wilmington	2	.....
Dist. of Columbia.		
Washington	3	0.0
Illinois.		
Chicago	3	.....
Oregon	4	.....
Peoria	1	6.0
Pontiac	1	.....
Springfield	1	.....
Indiana.		
Bloomington	2	.....
Evansville	T.	0.0
Indianapolis	1	.....
Paoli	5	.....
Iowa.		
Atlantic	4	.....
Charles City	4	.....
Davenport	3	11.0
Des Moines	2	18.0
Dubuque	5	17.0
Estherville	9	.....
Forest City	8	.....
Iowa City	4	.....
Keokuk	2	12.0
New Hampton	6	.....
Pocahontas	9	.....
Kentucky.		
Earlington	2	.....
Lexington	2	.....
Louisville	1	0.0
Maysville	4	.....
Mount Sterling	4	.....
Williamsburg	1	.....
Maine.		
Bangor	3	17.0
Eastport	5	0.0
Gardiner	7	13.0
Greenville	17	24.0
Lewiston	4	12.5
Millinocket	18	.....
Portland	11	0.0
Maryland.		
Baltimore	3	0.0
Easton	2	.....
Frederick	3	.....
Princess Anne	2	.....
Massachusetts.		
Adams	6	.....
Boston	14	.....
Fitchburg	17	.....
Mansfield	14	.....
Nantucket	4	0.0
Michigan.		
Alpena	4	14.0
Battle Creek	4	.....
Big Rapids	11	.....
Calumet	41	.....
Detroit	4	8.5
Escanaba	8	21.0
Grand Haven	5	.....
Grand Rapids	5	.....
Houghton	50	14.0
Iron Mountain	16	.....
Iron River	14	.....
Lansing	4	.....
Ludington	7	11.5
Mackinaw	4	.....
Michigan—Contd.	*Inches*	*Inches*
Manistee	14	.....
Marquette	20	6.0
Newberry	14	.....
Port Huron	8	8.0
Saginaw	8	7.0
Sault Ste. Marie	21	16.0
Minnesota.		
Collegeville	23	.....
Duluth	18	32.5
Fort Ripley	38	.....
Grand Meadow	11	.....
Hinckley	38	.....
International Falls	20	.....
Mankato	12	.....
Minneapolis	15	.....
Moorhead	21	32.0
Roseau	28	.....
St. Paul	16	15.0
Missouri.		
Brunswick	1	.....
Columbia	T.	.....
Hannibal	1	*†
Kansas City	T.	†
St. Louis	1	†
Montana.		
Billings	1	.....
Havre	12	.....
Helena	3	.....
Kalispell	8	.....
Miles City	10	.....
Missoula	4	.....
Nebraska.		
Auburn	2	.....
Lincoln	1	.....
North Platte	T.	.....
Omaha	2	21.0
Valentine	2	.....
Nevada.		
Reno	T.	0.0
Tonopah	T.	.....
New Hampshire.		
Bethlehem	8	.....
Concord	13	11.0
Hanover	8	.....
Keene	9	.....
New Jersey.		
Atlantic City	2	.....
Bridgeton	3	.....
Cape May	2	1.5
Newark	4	.....
Phillipsburg	4	.....
Sandy Hook	5	0.0
Trenton	2	1.5
New York.		
Albany	8	4.5
Binghamton	7	.....
Buffalo	13	11.0
Canton	9	.....
Ithaca	7	.....
Malone	2	.....
New York	4	.....
Ogdensburg	6	.....
Oswego	9	8.0
Rochester	9	4.5
Rome	12	.....
Roxbury	12	.....
Syracuse	8	.....
Warwick	12	.....
North Carolina.		
Hatteras	T.	0.5
Manteo	3	0.0
Raleigh	T.	.....
North Dakota.		
Bismarck	12	37.5
Devils Lake	11	.....
Williston	15	23.5
Ohio.	*Inches*	*Inches*
Cambridge	3	.....
Cincinnati	3	0.0
Cleveland	8	8.0
Columbus	2	.....
Dayton	2	0.0
Sandusky	2	7.5
Toledo	1	5.0
Waverly	6	.....
Youngstown	1	.....
Pennsylvania.		
Allentown	5	.....
Coatesville	2	.....
Emporium	4	.....
Erie	4	8.0
Franklin	3	.....
Greensboro	4	.....
Harrisburg	2	†
Huntingdon	4	.....
Indiana	6	.....
Lawrenceville	6	.....
Parkers Landing	4	.....
Philadelphia	2	0.0
Pittsburgh	4	†
Reading	2	0.0
Ridgway	5	.....
Scranton	3	.....
Somerset	4	.....
Sunbury	3	.....
Towanda	6	.....
Warren	8	.....
Williamsport	5	.....
Rhode Island.		
Block Island	2	*
Narragansett Pier	7	.....
Providence	9	*
South Dakota.		
Huron	16	25.5
Pierre	5	29.0
Yankton	2	21.0
Vermont.		
Brattleboro	7	12.0
Burlington	6	4.5
Northfield	7	.....
St. Johnsbury	8	.....
Virginia.		
Cape Henry	2	0.0
Culpeper	5	.....
Danville	1	.....
Fredericksburg	3	.....
Lynchburg	1	*
Norfolk	3	0.0
Staunton	2	.....
Williamsburg	3	.....
Washington.		
Seattle	T.	0.0
Spokane	T.	.....
Walla Walla	1	.....
West Virginia.		
Bayard	1	.....
Elkins	1	0.0
Hinton	1	.....
Huntington	2	.....
Parkersburg	4	0.0
Rowlesburg	2	.....
Wisconsin.		
Ashland	30	.....
Brodhead	5	.....
Green Bay	12	10.0
La Crosse	6	20.5
Madison	5	.....
Medford	13	.....
Milwaukee	4	0.0
Wausau	13	19.5
Wyoming.		
Sheridan	3	.....
Yellowstone Park	12	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



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Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *February 23, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

The week, as a whole, was characterized by mild weather for the season of the year over nearly all districts, except that the latter half was rather cold in the Northeastern States, and it was remarkably free from precipitation.

During the first day or two of the week there was a general rise in temperature to the eastward of the Mississippi, while from the Plains States westward the readings were much above the seasonal averages. By Friday morning considerably colder weather had overspread the extreme upper Mississippi Valley and Upper Michigan, but elsewhere temperature changes were unimportant, with a continuation of relatively high readings. By Saturday decidedly colder weather had set in over the districts to the eastward of the Mississippi, especially the Northeastern States, where, in some portions, readings below zero were recorded. During the following day or two cold weather continued in the interior of New York and New England, but in the South and to the west of the Mississippi River comparatively high temperatures for the season continued, and at the close of the week warmer weather had set in over the northeastern districts.

During the first half of the week there was almost an entire absence of precipitation throughout the country, as was also characteristic of the closing days of the preceding week. On Friday and Saturday a storm moved from the lower Lake region to the Canadian Provinces, attended by local precipitation in the Northeastern States, Lake region, and upper Ohio Valley, but elsewhere fair weather continued. During the last two days of the week a slight depression moved from the far Southwest to Kansas, attended by local rainfall in southern California, the southern portion of the Plateau district, and the west Gulf States, but elsewhere there was a continuation of fair weather.

DEPTH OF SNOW.

Practically no snow occurred in any portion of the United States during the past week, save at a few points in the Northeastern States, and on account of the continued warmth a large part of the covering at the end of the preceding week disappeared. As a result the snow-covered area is now much reduced, and the depths remaining are nearly everywhere less than a week ago.

From the Lake region westward the decrease in depth has been marked, ranging from 5 to nearly 15 inches. The melting occurred slowly, however, and no unusually high waters appear to have resulted.

In the winter-grain region the ground is now mostly uncovered, and the large accumulation of ice on the fields in some of the States to westward of the Mississippi seems to have disappeared without causing material injury to the growing grain.

As stated in previous bulletins the snowfall in the mountain districts of the West so far this winter has been very generally in excess of the normal. Later reports from the high ranges indicate that in some of the districts the fall has been the greatest ever known, especially in the far Northwest, where many reports have heretofore been missing, owing to the snow blockade. Nearly all reports agree that the snow in the high mountains is well packed, contains a large amount of water, and is in good condition to furnish an ample supply of water for irrigation and other purposes during the coming summer.

ICE IN RIVERS AND HARBORS.

Owing to continued warmth in the northern districts to westward of the Great Lakes, little new ice formed during the past week and a considerable amount disappeared from the Mississippi River and its tributaries to the southward of Dubuque, and there is now somewhat less in the Missouri and its tributaries. Moderate cold over the Northeastern States during the latter part of the week favored the formation of some additional ice, and the clear weather was ideal for harvesting, which is now general over New York and New England. The ice harvest in the Hudson and other streams in New York has been much delayed, but the prospects are that the usual amounts will now be cut.

In the Lake region some additional ice formed during the past week, and the harbors of Lakes Superior, Michigan, and Huron, as a rule, remain heavily icebound. In the lower Lakes the conditions remain about as previously reported.

The following special reports have been received:

Brattleboro, Vt., February 21.—The harvesting of the second crop of ice has begun.

Albany, N. Y., February 23.—The snow in the Hudson and Mohawk Valley averages 8 inches deep. In the rivers the ice averages 7 inches thick, and the ice harvest is in full blast.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 21, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*	*Minnesota*—Contd.	*Inches*	*Inches*	*Ohio.*	*Inches*	*Inches*
Flagstaff	6	.....	Fort Ripley	26	.....	Ashland	1	.....
Connecticut.			Grand Meadow	3	.....	Cleveland	T.	10.0
Hartford	8	8.0	International Falls	10	.....	Sandusky	0	8.0
New Haven	8	0.0	Mankato	6	.....	Tiffin	T.	.....
Illinois.			Milan	8	.....	Toledo	0	6.0
Hillsboro	T.	.....	Minneapolis	10	.....	Warren	T.	.....
Montrose	T.	.....	Moorhead	7	34.0	Wauseon	T.	.....
Oregon	T.	.....	Pipestone	4	.....	*Pennsylvania.*		
Peoria	0	*	Roseau	24	.....	Brookville	5	.....
Iowa.			St. Paul	10	14.0	Clarion	8	.....
Charles City	T.	.....	Thief River Falls	15	.....	Coatesville	T.	.....
Davenport	0	8.0	*Missouri.*			Drifton	8	.....
Des Moines	0	≷	Hannibal	0	†	Erie	2	10.0
Dubuque	2	14.0	Kansas City	0	†	Franklin	3	.....
Estherville	2	.....	St. Joseph	0	†	Greenville	3	.....
Forest City	2	.....	Unionville	T.	.....	Harrisburg	T.	†
Iowa City	T.	.....	*Montana.*			Indiana	2	.....
Keokuk	0	3.0	Miles City	T.	.....	Lawrenceville	7	.....
Mason City	T.	.....	Missoula	1	.....	Mifflintown	T.	.....
New Hampton	T.	.....	*Nebraska.*			Parkers Landing	4	.....
Pocahontas	2	.....	Omaha	0	≷	Pittsburgh	T.	0.0
Maine.			*Nevada.*			Reading	T.	0.0
Bangor	7	18.0	Reno	T.	0.0	Saltsburg	1	.....
Eastport	2	0.0	Tonopah	T.	.....	Scranton	2	.....
Gardiner	8	15.0	*New Hampshire.*			Stroudsburg	3	.....
Greenville	20	26.0	Bethlehem	6	.....	Sunbury	T.	.....
Lewiston	8	5.0	Concord	9	13.0	Towanda	4	.....
Orono	8	.....	Durham	10	.....	Warren	8	.....
Portland	6	0.0	Keene	6	.....	West Newton	1	.....
Van Buren	16	.....	*New Jersey.*			Williamsport	1	.....
Massachusetts.			Cape May	0	0.5	*Rhode Island.*		
Adams	6	.....	Newark	2	.....	Block Island	3	*
Boston	7	.....	Phillipsburg	4	.....	Kingston	6	.....
Fitchburg	15	.....	Sandy Hook	1	0.0	Narragansett Pier	4	.....
Mansfield	11	.....	Trenton	T.	7.0	Providence	4	2.0
Nantucket	2	1.0	*New York.*			*South Dakota.*		
Michigan.			Albany	4	4.5	Huron	2	24.0
Alpena	2	14.0	Angelica	5	.....	Pierre	T.	≷
Big Rapids	6	.....	Binghamton	6	.....	Yankton	0	†
Bloomingdale	T.	.....	Bouckville	9	.....	*Vermont.*		
Cadillac	6	.....	Buffalo	14	11.0	Brattleboro	9	15.0
Calumet	36	.....	Canton	6	.....	Burlington	6	7.0
Detroit	1	8.5	Cutchogue	6	.....	Northfield	5	.....
Escanaba	3	22.0	De Ruyter	10	.....	St. Johnsbury	5	.....
Grand Rapids	T.	.....	Ithaca	6	.....	*Washington.*		
Harrisville	2	.....	Malone	3	.....	Walla Walla	T.	.....
Houghton	24	17.5	New York	2	.....	*West Virginia.*		
Iron Mountain	10	.....	Ogdensburg	8	.....	Hinton	T.	.....
Ironwood	30	.....	Oswego	6	10.0	*Wisconsin.*		
Lansing	T.	.....	Plattsburg	2	.....	Ashland	24	.....
Ludington	2	12.5	Rochester	7	2.0	Barron	15	.....
Manistee	5	.....	Rome	12	.....	Eau Claire	2	.....
Marquette	19	6.0	Roxbury	11	.....	Fond du Lac	6	.....
Newberry	10	.....	Saranac Lake	15	.....	Green Bay	4	8.5
Port Huron	5	9.0	Saratoga Springs	6	.....	Grand Rapids	3	.....
Saginaw	4	7.0	Syracuse	8	.....	La Crosse	0	22.0
St. Ignace	2	.....	Warwick	14	.....	Madison	T.	.....
Sault Ste. Marie	18	19.0	Watertown	4	.....	Medford	5	.....
Minnesota.			*North Dakota.*			Milwaukee	T.	0.0
Campbell	11	.....	Bismarck	T.	34.0	Viroqua	T.	.....
Collegeville	15	.....	Devils Lake	2	T.	Wausau	6	19.0
Duluth	13	32.5	Williston	2	≷	*Wyoming.*		
						Lander	T.	.....
						Yellowstone Park	9	.....

*Shore ice. †Floating ice. ‡Ice gorged. ≷Measurement impracticable. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
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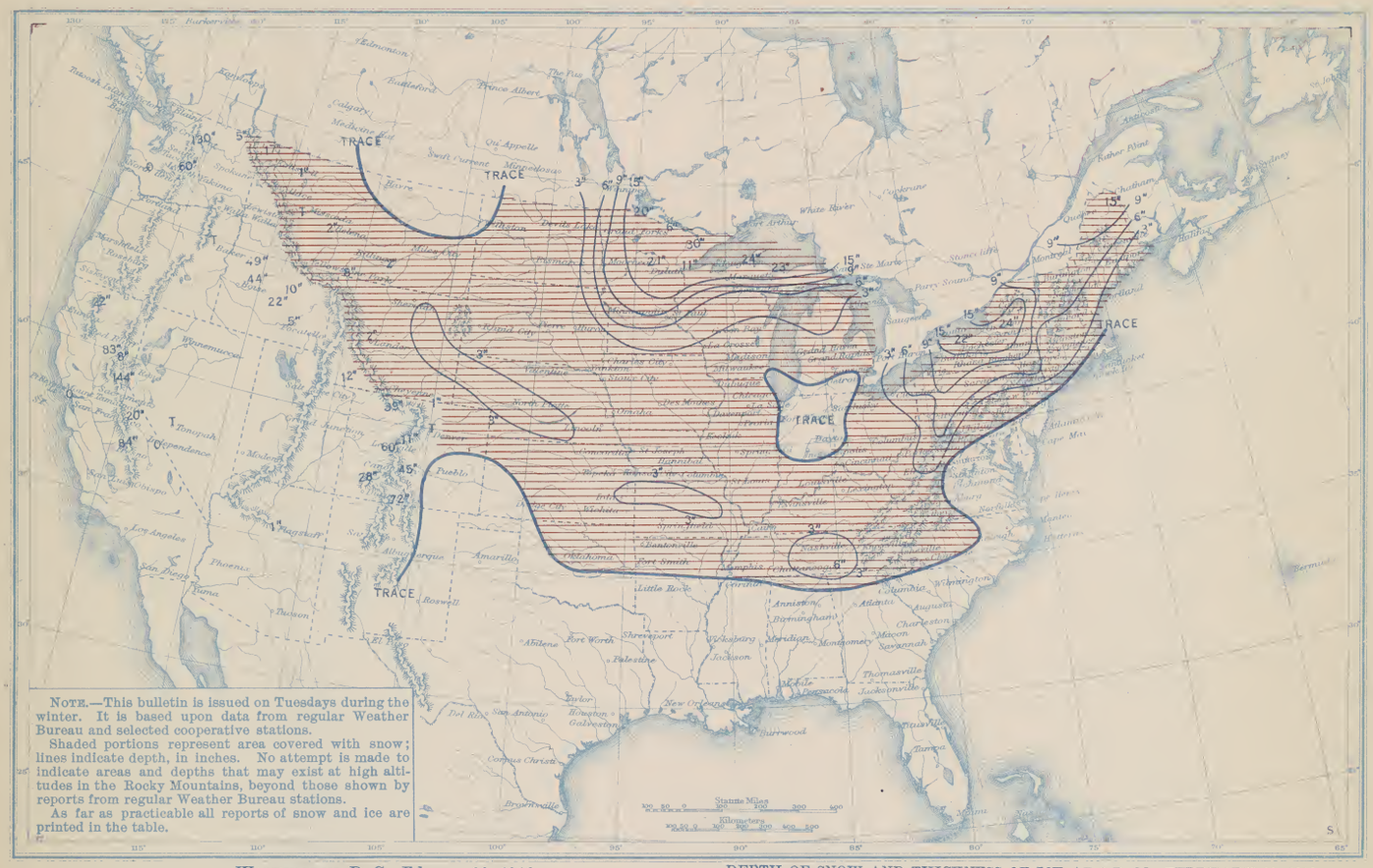
SNOW AND ICE BULLETIN.



NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *February 29, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

No unusually cold weather for the season of the year occurred during the week. Zero temperatures or somewhat lower prevailed in the interior of Maine and northern New York on Thursday and again near the close of the week, while like conditions were reported from the northern Plains States and points in the Rocky Mountain region during the last few days of the week, but with these exceptions, temperatures remained generally above zero throughout the week over northern districts, and changes from day to day were not marked. While no unusually low temperatures were experienced, moderately cold weather prevailed during the latter half of the week to the eastward of the Rocky Mountains, the line of freezing temperature extending to the interior of the east Gulf States, and the weather was quite generally somewhat colder than the seasonal average.

At the beginning of the week a low pressure area was central over Kansas. It moved thence slowly eastward, reaching the middle Atlantic coast on Friday, from which location it moved northward along the coast with greatly increased intensity. This storm was attended by rains in the Southern States and by rain or snow in the central and northern districts to eastward of the Mississippi River, and by high winds and gales along the central and northern coasts and in the interior of the Atlantic coast districts. Toward the latter part of the week another storm appeared in the far Southwest and moved rapidly eastward to the south Atlantic coast by the close. It was accompanied by rain or snow, generally light, over much of the country, and at the close of the week snow had fallen in North Carolina, Virginia, Tennessee, and the lower Ohio and middle Mississippi Valleys.

DEPTH OF SNOW.

From the Rocky Mountains eastward snow, mostly light, occurred over large areas during the past week, and all districts, except the Gulf and middle and south Atlantic States, were covered on the evening of February 28. However, the covering is comparatively light, except in the interior of the northeastern States and in portions of the Lake region. The depths in the Missouri, upper and middle Mississippi, and middle and lower Ohio Valleys amount, as a rule, to little more than a bare covering of the ground.

Compared with last week, the area with snow cover is much larger, but the increases in depths during the week in the districts with covering at the beginning were small in most cases, while in the coast districts of the northeastern States there was a rather pronounced melting of snow during the week.

In the elevated mountain regions of the West the seasons accumulation of snow is large, as indicated by some special reports from the high mountains, the values for which appear on the chart, but not in the tables. In these districts the lower elevations are mostly bare, but in all the higher mountains much snow covers the ground.

ICE IN RIVERS AND HARBORS.

As a result of moderate temperatures during the past week but little additional ice formed in any portion of the country, and there was a more or less reduction in thickness over many rivers and lakes.

In the Missouri and Mississippi Rivers and their tributaries but little solid ice now remains, except in the more northern portions.

In the Lake region the ice conditions are about as last reported, nearly all the harbors in the upper Lakes remaining heavily covered. In the Northeastern States the weather during the early part of the week just closed was generally favorable for the harvesting of ice, and this work was rapidly pushed toward completion, and the usual amount of excellent quality has very generally been housed. Farther south the opportunities for gathering ice during the winter have been decidedly limited, and the amount harvested is very generally less than will be required during the coming summer.

The following special report has been received:

Hartford, Conn., February 29.—The depth of snow in the Connecticut Valley averages 6 inches, with distribution fairly equable. The snow has high water content since the rain of the 25th, which resulted in a moderate flood in the lower river. However, the river ice continues firm. Ice harvesting will probably be completed this week, the ice being of fine quality, and a full crop being harvested in most places.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 28, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	1	.....
Arkansas.		
Bentonville	T.	.....
Fort Smith	T.	0.0
Colorado.		
Crested Butte	60	.....
Denver	T.	.....
Leadville	31	.....
Rico	28	.....
Connecticut.		
Hartford	3	8.0
New Haven	4	0.0
Idaho.		
Pocatello	5	.....
Illinois.		
Cairo	1	0.0
Chicago	T.	.....
Peoria	T.	1.0
Pontiac	2	.....
Springfield	T.	.....
Walnut	1	.....
Indiana.		
Bloomington	1	.....
Evansville	T.	0.0
Terre Haute	T.	0.0
Iowa.		
Atlantic	1	.....
Carroll	1	.....
Davenport	T.	≷
Des Moines	T.	≷
Dubuque	1	≷
Estherville	2	.....
Forest City	2	.....
Keokuk	T.	3.0
Pocahontas	2	.....
Sioux City	T.	0.0
Kansas.		
Concordia	1	.....
Iola	3	0.0
Marion	2	.....
Smith Center	1	.....
Topeka	1	.....
Wichita	T.	.....
Kentucky.		
Lexington	T.	.....
Louisville	T.	0.0
Maine.		
Bangor	T.	20.0
Eastport	T.	0.0
Gardiner	3	13.0
Lewiston	3	15.0
Portland	2	0.0
Van Buren	15	.....
Maryland.		
Oakland	8	.....
Massachusetts.		
Adams	4	.....
Boston	1	.....
Fitchburg	8	.....
Mansfield	2	.....
Nantucket	0	*
Michigan.		
Alpena	2	14.0
Big Rapids	2	.....
Cadillac	8	.....
Calumet	30	.....
Chatham	26	.....
Detroit	T.	9.5
Escanaba	2	22.0
Grand Haven	T.	.....
Grand Rapids	T.	.....
Houghton	24	18.0
Iron Mountain	10	.....
Iron River	12	.....
Ironwood	28	.....
Ludington	2	13.5
Michigan—Contd.		
Mackinaw	5	.....
Manistee	3	.....
Marquette	23	†
Port Huron	1	11.0
Rock	12	.....
Saginaw	1	6.5
Sault Ste. Marie	18	21.0
Minnesota.		
Campbell	10	.....
Collegeville	12	.....
Duluth	11	33.0
Grand Meadow	4	.....
Hinckley	21	.....
International Falls	6	.....
Mankato	5	.....
Minneapolis	7	.....
Moorhead	7	34.0
Roseau	20	.....
St. Paul	9	6.0
Winton	30	.....
Missouri.		
Brunswick	2	.....
Clinton	2	.....
Columbia	T.	.....
Hannibal	1	†
Ironton	3	.....
Kansas City	2	†
Rolla	3	.....
St. Joseph	T.	†
St. Louis	1	0.0
Springfield	1	.....
Unionville	5	.....
Montana.		
Billings	2	.....
Helena	2	.....
Kalispell	1	.....
Miles City	T.	.....
Missoula	T.	.....
Nebraska.		
Alliance	5	.....
Auburn	3	.....
Guide Rock	5	.....
Imperial	1	.....
Lincoln	1	.....
North Platte	3	.....
Omaha	1	†
Valentine	1	.....
Nevada.		
Tonopah	T.	.....
New Hampshire.		
Bethlehem	8	.....
Concord	3	11.0
Keene	5	.....
New Jersey.		
Cape May	0	*
Phillipsburg	1	.....
New York.		
Albany	2	6.0
Binghamton	6	.....
Buffalo	15	18.5
Canton	12	.....
Cooperstown	15	.....
Ithaca	9	.....
Ogdensburg	11	.....
Oswego	13	12.5
Plattsburg	4	.....
Rochester	22	≷
Rome	24	.....
Saranac Lake	15	.....
Syracuse	14	.....
Warwick	6	.....
North Carolina.		
Asheville	2	.....
Charlotte	2	.....
Raleigh	T.	.....
North Dakota.		
Bismarck	T.	30.0
Devils Lake	1	.....
Williston	0	≷
Ohio.		
Ashland	1	.....
Canton	5	.....
Cincinnati	T.	0.0
Cleveland	4	8.5
Columbus	T.	.....
Marion	1	.....
Sandusky	T.	6.0
Toledo	0	5.5
Warren	12	.....
Oklahoma.		
Oklahoma	T.	.....
Oregon.		
Baker	T.	.....
Pennsylvania.		
Clarion	9	.....
Drifton	8	.....
Erie	8	11.0
Franklin	6	.....
Greenville	6	.....
Harrisburg	T.	†
Indiana	3	.....
Meadville	8	.....
Parkers Landing	5	.....
Pittsburgh	4	†
Reading	T.	0.0
Ridgway	6	.....
Scranton	3	.....
Somerset	16	.....
Towanda	8	.....
Warren	10	.....
Rhode Island.		
Block Island	0	*
Providence	T.	*
South Dakota.		
Huron	T.	23.0
Pierre	T.	≷
Rapid City	T.	.....
Yankton	T.	†
Tennessee.		
Chattanooga	6	0.0
Knoxville	2	0.0
Memphis	1	0.0
Nashville	3	0.0
Vermont.		
Brattleboro	4	12.0
Burlington	7	11.0
Northfield	9	.....
St. Johnsbury	6	.....
Virginia.		
Wytheville	T.	.....
West Virginia.		
Bayard	8	.....
Elkins	4	*
Fairmont	2	.....
Parkersburg	T.	†
Rowlesburg	8	.....
Wisconsin.		
Ashland	24	.....
Barron	12	.....
Fond du Lac	4	.....
Green Bay	2	8.5
La Crosse	T.	20.0
Madison	T.	.....
Medford	4	.....
Milwaukee	T.	0.0
Wausau	5	20.0
Wyoming.		
Cheyenne	2	.....
Lander	2	.....
Sheridan	1	.....
Yellowstone Park	8	.....

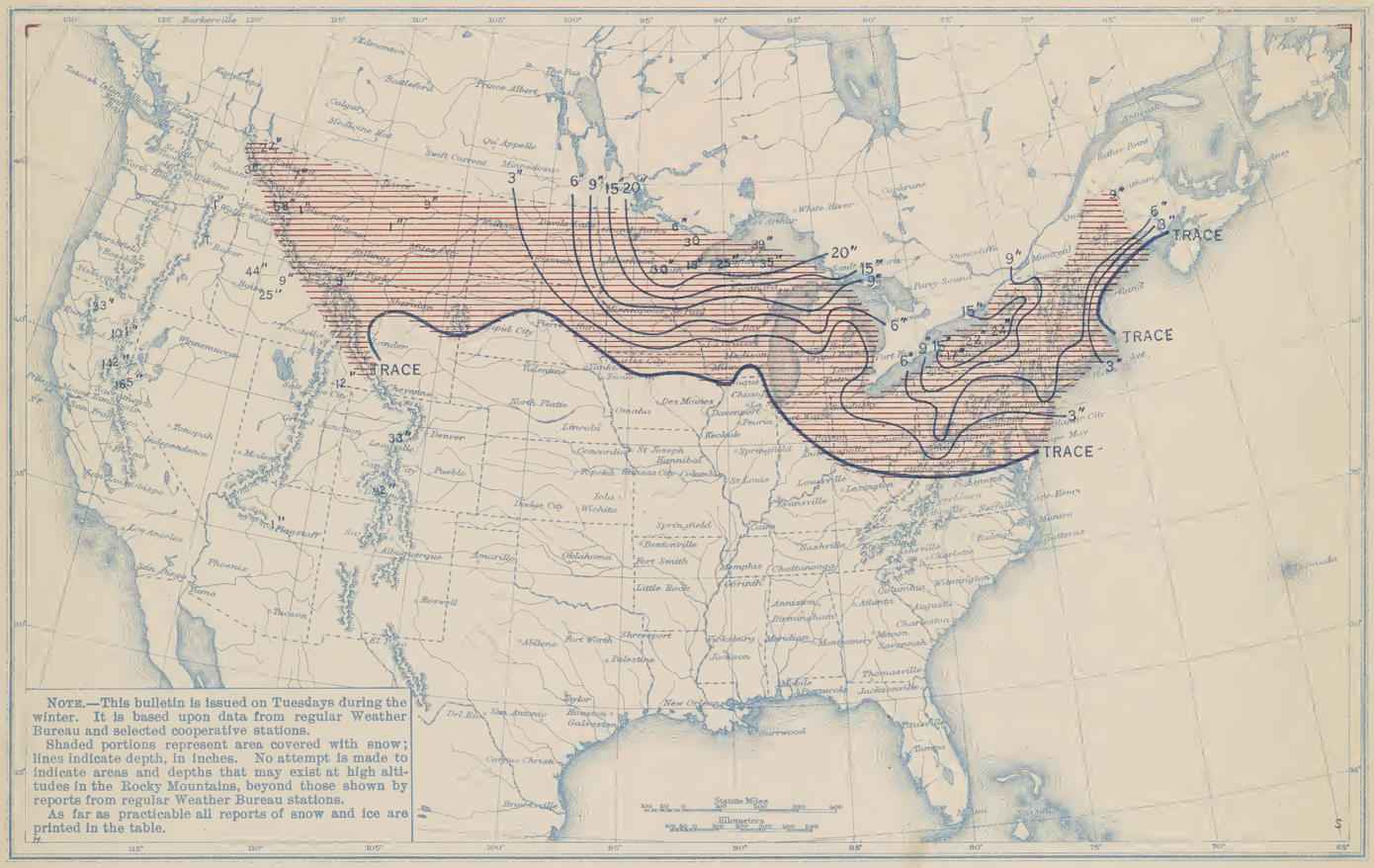
*Shore ice. †Floating ice. ‡Ice gorged. ≷Measurement impracticable. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,

WEATHER BUREAU.

CHARLES F. MARVIN, CHIEF.

SNOW AND ICE BULLETIN.



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As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *March 7, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

At the close of February, temperatures were generally below the seasonal averages over the districts to eastward of the Rocky Mountains, and they continued low over all northern districts during the greater part of the week. There was a tendency to higher temperatures over the central and southern districts by the middle of the week just closed, but this was soon followed by a decided drop in the temperature over the southern district by Saturday, when temperatures fell to freezing in southern Georgia and frost occurred Sunday morning in central Florida. Much warmer weather overspread the Great Plains by Saturday, extending eastward, and during Sunday temperatures above 90° were reported from points in Texas. At the close of the week considerably warmer weather prevailed in the eastern districts, and temperatures were above the normal over much of the remaining portions of the country.

Precipitation was rather widespread during the week, but the amounts were generally light, except over the Atlantic coast districts about Thursday and Friday. Snow was quite general over the mountain districts of the West during the early part of the week, but the amounts at the lower elevations were generally light. Later in the week considerable snow occurred from the Ohio Valley and Lake region northeastward to New England, and the week closed with a storm central over the Lake region, accompanied by general snows from the upper Mississippi Valley eastward to New York and New England, with local heavy falls in the latter districts.

DEPTH OF SNOW.

Compared with last week the snow covered area is now much less than at that time, but the actual amount of melting has been small, the cover over a large area of the central valleys last week being quite slight. Over the northern districts there has been a very general increase, amounting to from 6 to 12 inches in parts of the upper Lake region and from 3 to 6 inches near the middle Atlantic coast.

The ground continues heavily snow covered in the upper Lake region, and there is a considerable depth of snow along the southern shores of the lower Lakes and over much of New York and parts of the adjoining States.

In the western mountain districts local increases during the week amounted to a foot or more, but as a rule the increases were slight and some reductions in depths are reported, especially in Colorado.

The high mountains remain heavily covered and reports continue to indicate that the snow is well packed and in condition to furnish an abundant supply of water for the coming summer.

ICE IN RIVERS AND HARBORS.

Not much change occurred in the ice conditions, the amounts reported at the close of the week showing small gains in thickness over the more northern districts, while slight losses occurred in the more southern portions of the area where ice remained at the close of the preceding week. The ice harvest has generally been completed in the more northern districts, but farther south the crop continues deficient. The conditions on the Great Lakes are indicated in the special report from Detroit, which appears below.

The following special reports have been received; that from Detroit relates to the conditions existing throughout the Great Lakes and is a summary of a large number of reports collected at that station:

Brattleboro, Vt., March 6.—The harvesting of the second cut of ice has been completed.

Detroit, Mich., March 7.—There is a small field of ice over extreme western Lake Superior, and extensive fields are reported from the central and eastern portions. St. Marys river is covered with firm ice and Green Bay with moderately heavy ice. There are small fields over the southern part of Lake Michigan and extensive ones north of the Manitou Islands and at the Straits of Mackinac. In Lake Huron, ice fields are confined to the northern and southern portions. The St. Clair and Detroit Rivers are closed. There are extensive ice fields over Lake Erie, while in Lake Ontario there are small fields over the central and eastern portions. There seems to be more ice now in Lakes Superior, Huron, and Erie than at this date last year.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 6, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*	*Michigan*—Contd.	*Inches*	*Inches*	*Ohio*—Cont'd.	*Inches*	*Inches*
Flagstaff	1	.....	St. Ignace	6	.....	Toledo	1	5.0
Connecticut.			Sault Ste. Marie	19	23.5	Warren	18	.....
Hartford	4	9.0	*Minnesota.*			Wauseon	3	.....
New Haven	5	0.0	Campbell	10	.....	Waverly	T.	.....
West Cornwall	11	.....	Duluth	18	35.0	*Oregon.*		
Delaware.			Grand Meadow	4	.....	Baker	T.	.....
Millsboro	1	.....	Hinckley	32	.....	*Pennsylvania.*		
Wilmington	T.	.....	International Falls	6	.....	Allentown	T.	.....
Illinois.			Leech Lake Dam	23	.....	Clarion	9	.....
Oregon	T.	.....	Mankato	8	.....	Drifton	4	.....
Indiana.			Milan	6	.....	Franklin	6	.....
Marion	T.	.....	Minneapolis	7	.....	Greenville	6	.....
Richmond	1	.....	Moorhead	10	32.0	Harrisburg	4	†
Rochester	T.	.....	Fort Ripley	30	.....	Indiana	3	.....
Valparaiso	1	.....	Roseau	24	.....	Johnstown	7	.....
Iowa.			St. Paul	11	7.0	Meadville	10	.....
Davenport	0	≈	Thief River Falls	15	.....	Parkers Landing	5	.....
Des Moines	0	≈	Winton	30	.....	Philadelphia	3	0.0
Dubuque	T.	13.0	*Montana.*			Pittsburgh	1	0.0
Estherville	2	.....	Havre	2	.....	Reading	3	0.0
Iowa City	T.	.....	Helena	T.	.....	Ridgway	8	.....
Keokuk	0	1.0	Kalispell	7	.....	Saltsburg	4	.....
Mason City	T.	.....	Miles City	T.	.....	Scranton	7	.....
Pocahontas	1	.....	Missoula	1	.....	Somerset	3	.....
Maine.			*New Hampshire.*			Stroudsburg	1	.....
Bangor	T.	21.0	Bethlehem	9	.....	Towanda	7	.....
Eastport	T.	0.0	Hanover	7	.....	Warren	11	.....
Gardiner	T.	13.0	Keene	5	.....	Washington	2	.....
Lewiston	3	17.0	*New Jersey.*			West Newton	2	.....
Millinocket	17	.....	Atlantic City	1	.....	*Rhode Island.*		
Portland	1	0.0	Bridgeton	T.	.....	Block Island	4	0.0
Van Buren	9	.....	Cape May	1	1.0	Kingston	4	.....
Maryland.			Newark	T.	.....	Narragansett Pier	4	.....
Easton	T.	.....	Sandy Hook	6	0.0	Providence	2	*
Frederick	T.	.....	Trenton	3	0.0	*South Dakota.*		
Princess Anne	T.	.....	Tuckerton	3	.....	Huron	T.	23.0
Massachusetts.			*New York.*			Pierre	0	*
Adams	6	.....	Albany	6	7.0	Rapid City	T.	.....
Boston	2	.....	Binghamton	9	.....	Yankton	0	†
Concord	8	.....	Bouckville	17	.....	*Vermont.*		
Fitchburg	10	.....	Buffalo	17	14.5	Brattleboro	5	13.0
Mansfield	6	.....	Canton	13	.....	Burlington	7	14.0
Nantucket	6	6.0	Cutchogue	5	.....	Northfield	8	.....
Michigan.			Herkimer	5	.....	St. Johnsbury	5	.....
Alpena	7	15.0	Ithaca	10	.....	*Virginia.*		
Ann Arbor	1	.....	Malone	2	.....	Staunton	T.	.....
Battle Creek	1	.....	New York	7	.....	Woodstock	T.	.....
Big Rapids	1	.....	Ogdensburg	12	.....	*Washington.*		
Bloomingdale	1	.....	Oswego	15	14.5	Spokane	3	.....
Cadillac	8	.....	Plattsburg	14	.....	Walla Walla	T.	.....
Calumet	39	.....	Rochester	22	§	*West Virginia.*		
Detroit	3	12.0	Rome	24	.....	Bayard	6	.....
Escanaba	14	22.0	Syracuse	16	.....	*Wisconsin.*		
Grand Haven	T.	.....	Warwick	6	.....	Ashland	25	.....
Grand Rapids	T.	.....	Watertown	10	.....	Barron	17	.....
Harrisville	1	.....	*North Dakota.*			Eau Claire	5	.....
Houghton	26	18.0	Bismarck	3	35.0	Green Bay	4	8.0
Iron River	18	.....	Devils Lake	5	.....	Grand Rapids	5	.....
Ironwood	28	.....	Williston	2	22.0	La Crosse	0	20.0
Lansing	1	.....	*Ohio.*			Medford	7	.....
Ludington	3	15.5	Ashland	3	.....	Viroqua	1	.....
Manistee	10	.....	Canton	3	.....	Wausau	8	21.0
Marquette	35	8.0	Cleveland	T.	9.0	*Wyoming.*		
Newberry	12	.....	Marion	3	.....	Evanston	12	.....
Port Huron	3	12.0	Sandusky	T.	8.0	Sheridan	1	.....
Rock	15	.....	Tiffin	3	.....	Yellowstone Park	9	.....
Saginaw	2	6.5						

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

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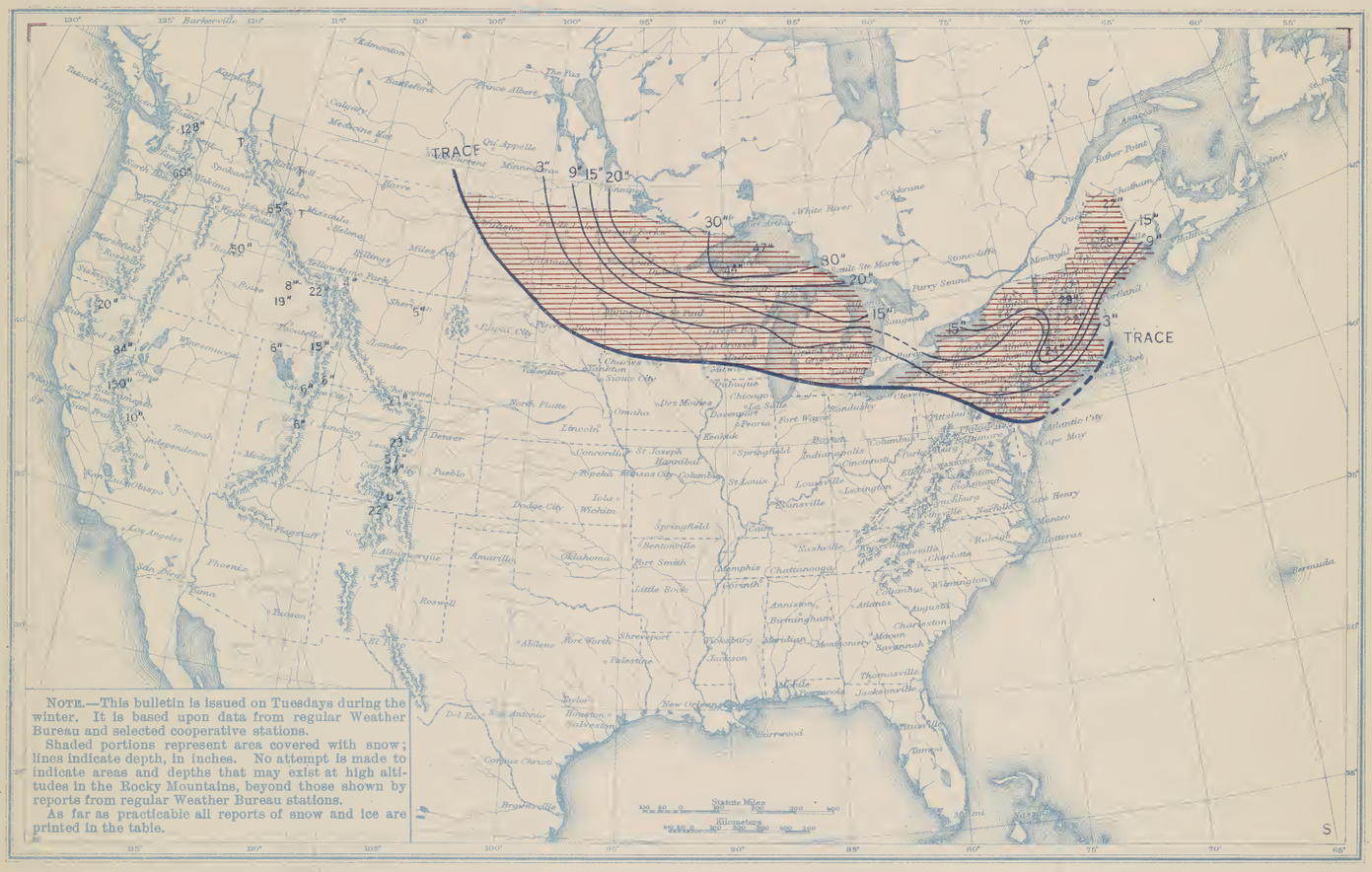
SNOW AND ICE BULLETIN.


TRACE
3"
9"
15"
20"
30"
47"
80"
TRACE
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As far as practicable all reports of snow and ice are printed in the table.
Statute Miles
Kilometers

WASHINGTON, D. C., *March 14, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

At the beginning of the week the temperatures were generally above the normal for the season in all portions of the country, but with a tendency to cooler weather in the South. During the first few days of the week the cool area moved eastward over the Gulf States and freezing temperatures occurred almost to the coast. At the same time much warmer weather overspread the Northwest and moved rapidly eastward, but this was in turn closely followed by a sharp fall in temperature over the districts from the upper Missouri Valley to the Great Lakes. During the latter part of the week warmer weather set in and at the close temperatures were much above the seasonal average over central and southern districts, but it was growing somewhat colder to the northward.

The storm central in the Lake region at the beginning of the week moved slowly eastward, and a second storm appeared at the same time over the South Atlantic States. The two storms appear to have merged near the southern New England coast and moved northeastward with greatly increased force, attended by severe gales and with general snows from the upper Ohio Valley and lower Lake region northeastward to Maine. A second storm moved rapidly along the northern border to New England by Friday accompanied by light snows from the Lake region eastward.

During the latter part of the week fair weather obtained in practically all portions of the country, save for local snows near the close in the Lake region and portions of New England and northern New York.

DEPTH OF SNOW.

Compared with last week, the snow covered area is now materially less than at that time, considerable melting having occurred during the week in the upper Mississippi Valley and northern Plains States, which was also the case in Pennsylvania, New Jersey, and southern New York. However, in the upper Lake region and over the interior portions of New York and New England the depths at this writing are considerably greater than were reported one week ago, the increases during the week in some cases ranging from 15 to 20 inches or more.

The upper Lake region is now snow covered to a depth of from 20 to 30 inches, while throughout the interior of New York and New England the depths range from 15 to about 25 inches.

In the western mountain districts but little snow occurred during the week. Large decreases in the amounts were noted at most lower-covered elevations, especially in portions of California and Washington, but all the higher elevations are still heavily snow covered. No large amount of run-off appears to have resulted from the melting, the water probably being largely absorbed by the soil. The excellent prospects for an abundant supply of water for the coming summer, as reported in previous issues, continue.

ICE IN RIVERS AND HARBORS.

On account of continued cold over the extreme northern districts from the Lake region to New England, small additions were made to the amounts of ice reported last week in those regions. Elsewhere there were very general decreases, although the changes from the preceding week were slight, except over the western end of Lake Erie and on some of the tributaries of the upper Missouri. There is little ice in the Missouri south of Yankton, and practically none in the Mississippi south of St. Paul.

Heavy ice still covers the streams and lakes of northern New England, northern New York, and most of the harbors of the Great Lakes. The conditions in the Lake region are fully set forth in the special report herewith from Detroit, based upon a large number of reports collected at that station.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 13, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	T.	.....
Colorado.		
Crested Butte	57	.....
Cumbres	70	.....
Leadville	23	.....
Marshall Pass	34	.....
Connecticut.		
Hartford	7	7.5
New Haven	4	.....
West Cornwall	24	.....
Iowa.		
Davenport	0	*
Des Moines	0	†
Dubuque	0	§
Sioux City	0	‡
Maine.		
Bangor	12	21.0
Eastport	4	.....
Lewiston	18	19.0
Millinocket	28	.....
Orono	14	.....
Portland	8	.....
Van Buren	22	.....
Massachusetts.		
Adams	26	.....
Amherst	11	.....
Boston	3	.....
Concord	18	.....
Holyoke	11	.....
Mansfield	9	.....
Nantucket	T.	*
Turners Falls	15	.....
Michigan.		
Alpena	7	*
Battle Creek	T.	.....
Big Rapids	6	.....
Cadillac	14	.....
Calumet	47	.....
Chatham	36	.....
Detroit	T.	9.0
Escanaba	14	23.0
Harrisville	24	.....
Houghton	32	19.0
Iron Mountain	18	.....
Iron River	25	.....
Ironwood	44	.....
Lansing	T.	.....
Ludington	4	15.0
Mackinaw	14	.....
Manistee	10	.....
Marquette	37	8.5
Newberry	28	.....
Port Huron	2	12.0
Rock	27	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Contd.	*Inches*	*Inches*
Saginaw	2	10.0
St. Ignace	30	.....
Sault Ste. Marie	27	23.5
Minnesota.		
Campbell	7	.....
Collegeville	10	.....
Duluth	20	35.0
Fort Ripley	20	.....
Grand Meadow	1	.....
International Falls	7	.....
Leech Lake Dam.	28	.....
Mankato	2	.....
Milan	T.	.....
Minneapolis	2	.....
Moorhead	5	30.0
Roseau	24	.....
St. Paul	4	§
Thief River Falls	20	.....
Winton	38	.....
Montana.		
Kalispell	T.	.....
Missoula	T.	.....
New Hampshire.		
Bethlehem	29	.....
Concord	22	12.0
Hanover	17	.....
Keene	13	.....
New Jersey.		
Newark	4	.....
Phillipsburg	1	.....
Sandy Hook	2	.....
Trenton	T.	.....
Tuckerton	T.	.....
New Mexico.		
Chama	22	.....
Cloudcraft	2	.....
New York.		
Albany	8	7.0
Binghamton	7	.....
Buffalo	14	14.5
Canton	19	.....
Cutchogue	8	.....
Herkimer	7	.....
Ithaca	5	.....
Lowville	14	.....
Malone	3	.....
New York	2	.....
Ogdensburg	22	.....
Oswego	18	16.5
Plattsburg	18	.....
Rochester	14	§
Saranac Lake	30	.....
Syracuse	15	.....
Watertown	14	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
North Dakota.	*Inches*	*Inches*
Bismarck	T.	34.0
Williston	T.	†
Ohio.		
Cleveland	0	8.0
Sandusky	0	3.0
Toledo	0	*
Pennsylvania.		
Allentown	T.	.....
Clarion	9	.....
Drifton	8	.....
Erie	1	10.0
Franklin	3	.....
Harrisburg	T.	.....
Johnstown	T.	.....
Lawrenceville	7	.....
Parkers Landing	2	.....
Reading	T.	.....
Ridgway	6	.....
Scranton	T.	.....
Towanda	4	.....
Warren	13	.....
Williamsport	T.	.....
Rhode Island.		
Block Island	T.	.....
Narragansett Pier.	T.	.....
Providence	1	*
South Dakota.		
Huron	T.	16.0
Yankton	0	†
Utah.		
Heber	6	.....
Kelton	6	.....
Vermont.		
Brattleboro	9	11.0
Burlington	18	15.0
Northfield	18	.....
St. Johnsbury	12	.....
Wells River	16	.....
White River Junc.	20	.....
West Virginia.		
Bayard	T.	.....
Wisconsin.		
Barron	18	.....
Eau Claire	T.	.....
Fond du Lac	1	.....
Green Bay	2	8.0
Grand Rapids	T.	.....
La Crosse	0	§
Medford	7	.....
Rhinelander	21	.....
Wausau	8	19.5
Wyoming.		
Buffalo	5	.....
Evanston	6	.....
Yellowstone Park.	4	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

Detroit, Mich., March 14.—There is a heavy field of ice over extreme western Superior, and from Keweenaw Point to Whitefish Bay. There has been no change since last week in the St. Marys River or in Green Bay. The fields in Lake Michigan are confined to the northern portion, with heavy ice at the straits. The Huron fields are over the northern and southern portions, and along the eastern shore. The St. Clair and Detroit Rivers continue closed. There are extensive fields over western Erie and along the southern shore. There are but few fields in Ontario. There is more ice over eastern Superior, Huron, and Erie than last year at this time, and the ice in Superior is heavier.

P. C. DAY, *Climatologist and Chief of Division.*

U. S. DEPARTMENT OF AGRICULTURE,
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SNOW AND ICE BULLETIN.

NOTE.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.

Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *March 21, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

The change to colder weather, referred to in the previous issue of this Bulletin, rapidly overspread the districts to the eastward of the Rocky Mountains, and by the middle of the week it had extended into the southeastern districts, the temperature ranging from 10° to nearly 30° below the normal for the period of the year. Freezing temperatures had extended into northern Florida and frost was reported from the central districts of that State.

Warmer weather followed in the central States, but it continued unusually cold from the Lake region eastward and southward during much of the latter part of the week, some of the lowest temperatures of record for so late in March being reported locally from eastern districts.

At the close of the week warmer weather was developing over nearly all northern and western districts, but it continued cool in the Middle Atlantic and New England States, but with a tendency to warmer.

Early in the week a storm developed in the Southwest, which by Wednesday morning had advanced to the Middle Atlantic States and by the following morning had moved rapidly northeastward to a position off the Nova Scotia coast. This storm was accompanied by rains in the southern districts to the eastward of the Mississippi River and by snows over the northern districts, with northerly gales in New England and the Middle Atlantic States, the snowfall being heavy in parts of New York and New England.

After the passage of this storm, only light and widely-scattered precipitation occurred until Sunday, when general rains set in over the Pacific coast, and extended to the Rocky Mountain district by the close of the week, at which time general but light rains and snows had likewise occurred over the central and northern districts to the eastward of the Mississippi, except in New England.

DEPTH OF SNOW.

The storm that moved over the Northeastern States near the middle of the week gave some heavy falls of snow in portions of Pennsylvania, New York, and New England, the increased depths reported over those of the preceding week amounting to 10 inches or more in a few localities. In the upper drainage of the Ohio and in the lower Lake region there was some increase in depth, but elsewhere the amounts reported are almost universally less than those of the preceding week, although there has been no material decrease in the snow covered area.

In the western Mountain districts the moderate warmth caused a considerable settling of the snow, but it is improbable there was any material run-off, due to freezing at night. The depths are now generally from 6 to 10 inches less than previously reported, but the outlook for a plentiful supply of water for the coming growing season has not changed materially.

The general lack of a snow cover over the winter grain growing region during the cold weather of the past week left the plants without protection and may have caused some injnry, although this was doubtless much lessened by the absence of frequent thawing.

ICE IN RIVERS AND HARBORS.

Due to the persistence of cold weather from the region of the Great Lakes eastward, considerable additions were made to the thickness of ice in the rivers and lakes in these districts over that reported one week ago, the increases during the week amounting in some cases to from 2 to 4 inches or slightly more, but in the upper Mississippi and Missouri Valleys there were slight decreases.

Ice remains heavy on the rivers and lakes of New York and New England and also in most of the Lake harbors, the thickness being much greater than existed at this time last year, and present reports indicate that the opening of navigation will be delayed beyond the usual date of resumption. The conditions over the Great Lakes are indicated in detail by the accompanying special report from Detroit.

Detroit, Mich., March 21.—In Lake Superior heavy fields of ice are reported from Duluth to Whitefish Point, and the ice is windrowed over the eastern portion. There has been no change in conditions in St. Marys River or Green Bay during the past week. More fields are reported over northern Lake Michigan, and the ice in the straits is heavy and firm. The ice fields have increased over the northern and southern portions of Lake Huron, but the Detroit River is partially open. There are fields over western Lake Erie and along the south shore to the east end, extending beyond vision, and also over central and eastern Ontario, but the latter are not heavy.

P. C. DAY, *Climatologist and Chief of Division.*

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 20, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	*Inches*	*Inches*
Flagstaff	T.	.....
California.		
Huntington Lake	74	.....
Inskip	67	.....
Sierraville	21	.....
Summit	144	.....
Colorado.		
Crested Butte	45	.....
Cumbres	39	.....
Marshall Pass	28	.....
Leadville	8	.....
Steamboat Springs	11	.....
Connecticut.		
Hartford	11	7.5
New Haven	5	0.0
West Cornwall	27	.....
Illinois.		
Oregon	T.	.....
Walnut	T.	.....
Maine.		
Bangor	12	21.0
Eastport	8	0.0
Gardiner	15	14.0
Lewiston	28	18.0
Millinocket	28	.....
Portland	15	0.0
Maryland.		
Oakland	T.	.....
Massachusetts.		
Adams	24	.....
Amherst	10	.....
Boston	7	.....
Fitchburg	22	.....
Mansfield	9	.....
Nantucket	T.	6.0
Michigan.		
Alpena	6	*
Big Rapids	4	.....
Cadillac	14	.....
Calumet	48	.....
Chatham	34	.....
Detroit	2	18.0
Escanaba	13	24.0
Grand Haven	2	.....
Grand Rapids	2	.....
Harrisville	18	.....
Houghton	29	21.0
Iron Mountain	16	.....
Ironwood	32	.....
Lansing	1	.....
Ludington	4	*
Mancelona	30	.....
Manistee	9	.....
Marquette	32	12.0
Newberry	22	.....
Port Huron	2	18.5
Rock	26	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
Michigan—Contd.	*Inches*	*Inches*
Saginaw	3	10.0
St. Ignace	28	.....
Sault Ste. Marie	30	26.0
Minnesota.		
Campbell	3	.....
Duluth	10	35.0
Grand Meadow	T.	.....
International Falls	6	.....
Leech Lake Dam	29	.....
Mankato	T.	.....
Minneapolis	T.	.....
Moorhead	3	26.0
Ripley	12	.....
Roseau	22	.....
St. Paul	T.	*
Thief River Falls	26	.....
Winton	32	.....
Montana.		
Glacier Park	7	.....
Glasgow	8	.....
Haugan	31	.....
Missoula	T.	.....
New Hampshire.		
Bethlehem	30	.....
Concord	30	17.0
Hanover	19	.....
Keene	13	.....
New Jersey.		
Cape May	0	0.5
Newark	2	.....
Phillipsburg	2	.....
Sandy Hook	T.	0.0
Trenton	T.	0.0
New York.		
Albany	15	6.0
Angelica	20	.....
Binghamton	17	.....
Bouckville	29	.....
Buffalo	19	16.0
Canton	18	.....
Cutchogue	6	.....
De Ruyter	30	.....
Herkimer	6	.....
Ithaca	12	.....
Lake Placid	45	.....
New York	1	.....
Ogdensburg	18	.....
Oswego	16	18.5
Perrysburg	16	.....
Rochester	25	‡
Rome	30	.....
Roxbury	36	.....
Saranac Lake	30	.....
Syracuse	21	.....
Warwick	18	.....
Watertown	10	.....

Stations.	Snow.	Ice in rivers, harbors, etc.
North Dakota.	*Inches*	*Inches*
Bismarck	0	‡
Devils Lake	T.	.....
Williston	T.	0.0
Ohio.		
Ashland	2	.....
Cleveland	2	8.5
Sandusky	2	5.0
Tiffin	T.	.....
Toledo	1	2.0
Wauseon	T.	.....
Oregon.		
Detroit	5	.....
Gov't Camp	80	.....
Sparta	6	.....
Pennsylvania.		
Allentown	T.	.....
Coatesville	T.	.....
Drifton	11	.....
Erie	5	14.0
Harrisburg	T.	†
Huntingdon	1	.....
Hyndman	T.	.....
Lawrenceville	18	.....
Mifflintown	2	.....
Pittsburgh	T.	†
Reading	T.	0.0
Scranton	4	.....
Stroudsburg	5	.....
Sunbury	6	.....
Towanda	16	.....
Williamsport	7	.....
Rhode Island.		
Block Island	1	0.0
Kingston	4	.....
Narragansett Pier	1	.....
Providence	1	0.0
South Dakota.		
Huron	0	†
Pierre	0	†
Vermont.		
Brattleboro	13	11.0
Burlington	15	16.0
St. Johnsbury	13	.....
West Virginia.		
Bayard	T.	.....
Parkersburg	T.	0.0
Wisconsin.		
Ashland	26	.....
Fond du Lac	1	.....
Green Bay	1	9.0
Grand Rapids	T.	.....
Medford	5	.....
Wausau	4	22.0
Wyoming.		
Evanston	T.	.....
Yellowstone Park	T.	.....

* Shore ice. † Floating ice. ‡ Ice gorged. ‡ Measurement impracticable. T. indicates trace.

U. S. DEPARTMENT OF AGRICULTURE,
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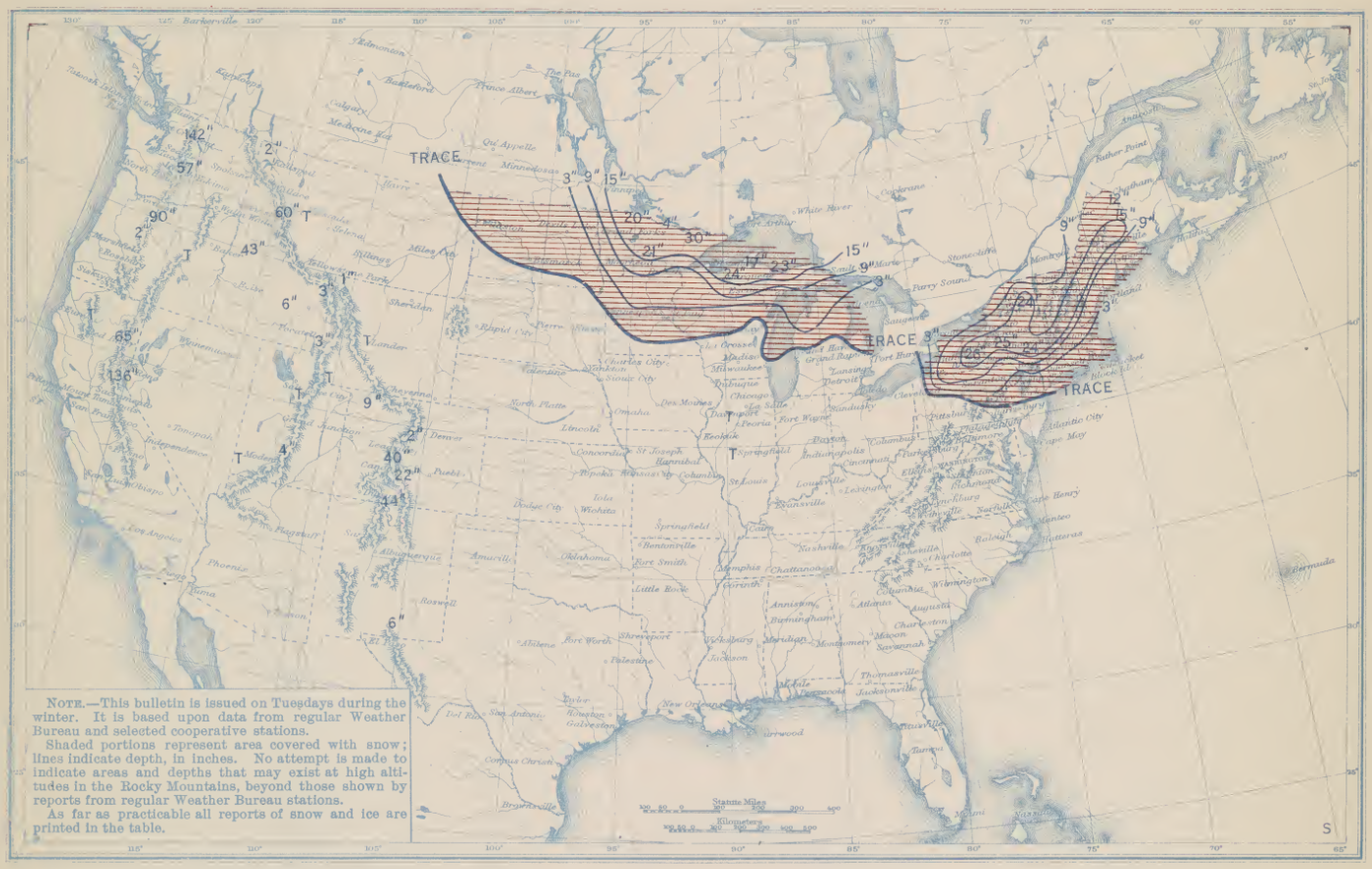
SNOW AND ICE BULLETIN.



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Shaded portions represent area covered with snow; lines indicate depth, in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond those shown by reports from regular Weather Bureau stations.

As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., *March 28, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

The week opened with rising temperature in nearly all portions of the country to eastward of the Rocky Mountains, but on the Pacific slope cool weather prevailed, and lower temperatures were advancing into the Northwest. The weather continued warm over the eastern districts during Wednesday, especially to the southward, where some unusually high temperatures occurred, but this was quickly followed by a decided change to colder weather, and by Thursday morning temperatures were much below normal over most central and eastern districts, with frosts into the northern portions of the Gulf States.

Higher temperatures quickly followed, and by Saturday it was again moderately warm over the districts from the Mississippi Valley eastward, except in New England, while to the westward it was again growing colder, with freezing weather in northern Texas. During the latter part of the week the weather continued moderately cool in the central valleys and over the Gulf States, but it continued warm in the northeastern districts, while in the far West it continued moderately cool with a tendency to warmer at the close of the week.

The moderate storm area over the Rocky Mountain regions at the close of the preceding week moved rapidly eastward, and by Tuesday morning it was central in the Ohio Valley as a storm of marked severity, with general rains and snows over considerable areas to the northward, and by the following morning it had moved to the Canadian Maritime Provinces with still further increase in energy, and snows and rains were general over all northeastern districts. By the middle of the week another storm area of wide extent had moved to the Plains region with rains or snows, mostly light, over wide areas from the Mississippi Valley westward. This disturbance moved slowly eastward during the latter part of the week, giving heavy rains over portions of the Gulf States, Ohio Valley, and adjacent districts, and at the close it still prevailed as a storm of some extent, central near the middle Atlantic coast.

DEPTH OF SNOW.

Only small amounts of snow appear to have fallen during the week, except in the far Northwest, where in the mountain districts of Oregon and Washington 10 inches or more increases in depth are reported locally.

Over the districts from the Lake region eastward there was a large decrease in depth of snow cover, amounting to 12 or 15 inches in portions of New York and New England, and decreases nearly as great occurred in the upper Lake region. It appears that no great amount of run-off has yet occurred, save in portions of southern New York and northern Pennsylvania, the snow probably settling rather than melting. On account of the considerable amounts still remaining on the ground and the probable large water content, a heavy run-off is liable in case of marked warm weather, and high water may be expected in the streams of New York and New England.

In the mountain districts of the West moderately cool weather prevented any rapid melting of the snow and the depths remain close to those previously reported, except in portions of the mountains of Washington and Oregon, where there were locally considerable additions to the previous depths. The outlook for water for irrigation and other purposes in nearly all western districts continues the best for years.

ICE IN RIVERS AND HARBORS.

The prevalence of moderate temperature during the week caused the disappearance of most of the ice from the rivers of the country save in northern New York and over New England, where the rivers and lakes still remain heavily covered, although there was some reduction in the ice thickness.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 27, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
California.	*Inches*	*Inches*	*Michigan*—Contd.	*Inches*	*Inches*	*New York*—Contd.	*Inches*	*Inches*
Huntington Lake	69	.....	Marquette	23	8.5	Rochester	10	≷
Inskip	65	.....	Newberry	13	.....	Rome	12	.....
Sierraville	20	.....	Port Huron	T.	10.0	Roxbury	24	.....
Summit	136	.....	Rock	26	.....	Saranac Lake	24	.....
Table Rock	92	.....	Saginaw	0	≷	Syracuse	12	.....
Colorado.			St. Ignace	6	.....	Watertown	4	.....
Crested Butte	40	.....	Sault Ste. Marie	16	26.0	*North Dakota.*		
Cumbres	44	.....	*Minnesota.*			Bismarck	2	‡
Leadville	2	.....	Campbell	2	.....	Devils Lake	T.	.....
Marshall Pass	22	.....	Collegeville	5	.....	Williston	T.	≷
Steamboat Springs	9	.....	Duluth	6	34.0	*Ohio.*		
Connecticut.			Hinckley	6	.....	Cleveland	0	6.0
Hartford	1	7.5	International Falls	4	.....	*Oregon.*		
New Haven	2	0.0	Leech Lake Dam	21	.....	Detroit	2	.....
West Cornwall	18	.....	Mankato	T.	.....	Gov't Camp	90	.....
Illinois.			Milan	T.	.....	*Pennsylvania.*		
Peoria	1	0.0	Minneapolis	T.	.....	Erie	0	8.0
Springfield	T.	.....	Moorhead	1	≷	Reading	T.	0.0
Idaho.			Ripley	6	.....	Scranton	T.	.....
Elk Creek	60	.....	Roseau	20	.....	*Rhode Island.*		
McCall	43	.....	St. Paul	T.	0.0	Block Island	T.	0.0
Halley	6	.....	Winton	30	.....	Kingston	1	.....
Maine.			*Missouri.*			Narragansett Pier	T.	.....
Bangor	T.	20.0	Unionville	T.	.....	*Utah.*		
Eastport	T.	0.0	*Montana.*			Modena	T.	.....
Gardiner	8	12.0	Missoula	T.	.....	Richfield	4	.....
Lewiston	≷	12.5	*New Hampshire.*			*Vermont.*		
Millinocket	20	.....	Bethlehem	15	.....	Bellows Falls	8	.....
Portland	T.	0.0	Concord	12	17.0	Brattleboro	9	10.0
Van Buren	12	.....	Hanover	15	.....	Burlington	6	12.0
Massachusetts.			Keene	6	.....	Northfield	8	.....
Adams	16	.....	W. Stewartstown	8	.....	St. Johnsbury	6	.....
Boston	T.	.....	*New Jersey.*			Wells River	14	.....
Fitchburg	6	.....	Newark	T.	.....	White River Junc.	6	.....
Holyoke	6	.....	*New Mexico.*			Windham	12	.....
Mansfield	4	.....	Cloudcroft	6	.....	*Washington.*		
Nantucket	T.	0.0	*New York.*			Cascade Tunnel	142	.....
Turners Falls	12	.....	Albany	4	≷	Stampede	57	.....
Michigan.			Angelica	10	.....	*Wisconsin.*		
Big Rapids	2	.....	Binghamton	8	.....	Green Bay	0	6.0
Cadillac	3	.....	Bouckville	26	.....	Grand Rapids	T.	.....
Calumet	40	.....	Buffalo	4	15.0	La Crosse	0	†
Chatham	24	.....	Canton	6	.....	Medford	3	.....
Detroit	0	14.0	Cutchogue	5	.....	Milwaukee	T.	.....
Escanaba	4	23.5	De Ruyter	25	.....	Rhinelander	9	.....
Harrisville	2	.....	Ithaca	5	.....	Wausau	2	19.5
Houghton	17	17.5	Lowville	6	.....	*Wyoming.*		
Iron Mountain	11	.....	Ogdensburg	5	.....	Evanston	T.	.....
Iron River	18	.....	Oswego	6	18.0	Lander	T.	.....
Ironwood	24	.....	Plattsburg	5	.....	Yellowstone Park	1	.....
Manistee	6	.....						

*Shore ice. †Floating ice. ‡Ice gorged. ≷Measurement impracticable. T. indicates trace.

In the Great Lakes the harbors remain closed as a rule, with but little change during the week. The conditions over the several Lakes are indicated in the accompanying special report from Detroit.

Detroit, Mich., March 28.—Over western and eastern Superior conditions are unchanged. The fields have moved beyond vision off Keweenaw Point. There has been no change in St. Marys River, Green Bay, or the Straits. There are extensive fields over northern Michigan, but more open water obtains over northern Huron, while there has been no change over the central and southern portions. The Detroit River is open. There is less ice over extreme western Lake Erie, but from Sandusky east to Buffalo the fields generally extend beyond vision on the south shore, while there is much more open water along the north shore. There are extensive fields over central and eastern Ontario, more ice being present than at this time last season.

P. C. DAY, *Climatologist and Chief of Division.*

U. S. DEPARTMENT OF AGRICULTURE,
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SNOW AND ICE BULLETIN.

WASHINGTON, D. C., *April 4, 1916.*

GENERAL REVIEW OF THE WEATHER DURING THE WEEK.

At the beginning of the week moderately cool weather continued in eastern districts, with light frost Wednesday morning into the central portions of Alabama and Mississippi, but it had become somewhat warmer in the Mississippi Valley and Plains region, and during the next day or two there was a slight warming up to the eastward. In the meantime a sharp fall in temperature had occurred over the Plateau districts of the West, and during the following few days this cool area overspread the regions to the eastward, and moderately cool weather for the season continued in most districts until the close of the week. While the week as a whole was moderately cool, no marked or rapid changes in temperature occurred and no unusual extremes were recorded.

The disturbance referred to in the last issue of this bulletin passed to sea off the middle Atlantic coast near the beginning of the week, and unsettled, showery weather continued in its wake as far westward as the middle Ohio Valley and lower Lakes. Aside from the remnants of this disturbance, the only important storm area of the week moved slowly eastward, over southern districts, from the far Southwest near the beginning of the week to the south Atlantic coast at its close. This storm was accompanied by rather extensive, though mostly light, precipitation from the Rocky Mountains eastward, although some heavy local rainfall occurred in the Gulf States on Saturday and Sunday, especially in Texas. But little snow fell during the week, although on Tuesday morning snow had set in over portions of the Northeastern States and also at places in the southern mountain districts of the West, the latter due to a disturbance that had appeared in that region.

DEPTH OF SNOW.

No material snowfall occurred during the week, and that remaining on the ground at the beginning gradually melted under the influence of the increasing temperature. A large amount disappeared from the elevated portions of New York and the interior of New England, and considerable amounts now prevail only in the protected and higher localities. Similar conditions existed in the upper Lake region, except that there is still a considerable depth of unmelted snow in the heavily wooded areas. On account of the freezing temperature at night in most of the snow-covered area, the melting was not rapid and the run-off not sufficient to cause serious floods, except in some of the smaller streams. Reports indicate that at the present time the ground is largely free from frost and the melting snow has left the soil well supplied with moisture. Considerable damage to the late sown winter grain, due to absence of a sufficient snow cover at the periods of severe cold during the winter, is reported from some of the States, but the early sown appears to have come through the winter in good condition.

In the western mountain regions the absence of late snow storms and the fairly early disappearance of the snow cover at most of the lower elevations was favorable to stock of all kinds, which is reported to have come through the winter in good condition. The snow cover in the high mountains was not greatly reduced during the week, and the run-off was probably not large, except in a few districts. The soil appears well filled with moisture at the present time, and the outlook for a plentiful supply of water for the coming season continues excellent.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., APRIL 3, 1916.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
California.	*Inches*	*Inches*	*Michigan*—Contd.	*Inches*	*Inches*	*New York*—Contd.	*Inches*	*Inches*
Huntington Lake	61	.....	Sault Ste. Marie	5	22.0	Binghamton	T.	.....
Inskip	53	.....	*Minnesota.*			Buffalo	0	14.0
Sierraville	18	.....	Collegeville	1	.....	Canton	T.	.....
Summit	118	.....	Duluth	T.	33.0	*North Dakota.*		
Table Rock	78	.....	Fort Ripley	1	.....	Bismarck	T.	‡
Colorado.			Hinckley	2	.....	Devils Lake	T.	.....
Cumbres	45	.....	Leech Lake Dam	10	.....	Williston	T.	*†
Denver	T.	.....	Mankato	T.	.....	*Oregon.*		
Marshall Pass	22	.....	Minneapolis	T.	.....	Gov't Camp	79	.....
Steamboat Springs	6	.....	Moorhead	0	†	*Pennsylvania.*		
Idaho.			Roseau	16	.....	Erie	0	†
Elk Creek	52	.....	St. Paul	T.	†	*South Dakota.*		
Hailey	2	.....	Thief River Falls	3	.....	Rapid City	T.	.....
McCall	35	.....	Winton	24	.....	*Vermont.*		
Maine.			*Montana.*			Burlington	0	3.0
Lewiston	T.	0.0	Haugan	20	.....	Northfield	T.	.....
Michigan.			*New Hampshire.*			St. Johnsbury	T.	.....
Alpena	T.	0.0	Bethlehem	T.	.....	*Wisconsin.*		
Calumet	28	.....	Keene	T.	.....	Wausau	T.	†
Escanaba	T.	22.0	*New Mexico.*			*Wyoming.*		
Houghton	8	14.0	Corona	T.	.....	Buffalo	2	.....
Marquette	11	7.0	Des Moines	1	.....	Evanston	1	.....
Newberry	8	.....	*New York.*			Newcastle	T.	.....
Port Huron	0	†	Albany	T.	0.0	Thermopolis	T.	.....
			Angelica	T.	.....	Yellowstone Park	T.	.....

*Shore ice. †Floating ice. ‡Ice gorged. ‖Measurement impracticable. T. indicates trace.

ICE IN RIVERS AND HARBORS.

The continuance of moderately cool spring weather favored the slow breaking up of the ice remaining over the rivers and small lakes, and it has moved out very generally without gorging or serious flooding, except in some of the smaller streams.

In the Great Lakes heavy ice still prevails in Lake Superior and all harbors remain closed, while similar conditions obtain over the northern straits. In the other portions of the Lakes the harbors are largely open, although extensive drifting ice fields are reported. The conditions over the several lakes are indicated in the accompanying special report from Detroit.

Detroit, Mich., April 4.—The extensive fields in Lake Superior are beginning to move with the wind over the eastern portion. There are extensive fields over northern Michigan, and no change since last week is reported in St. Marys River or Green Bay. The ice in the Straits continues solid, and the Huron fields remain about the same, except that ice began running into the St. Clair River on Monday. The ice is going out of Lake St. Clair rapidly, and the Detroit River is open. Extreme western Erie is free of ice, with extensive fields from Sandusky eastward to Buffalo, except off Conneaut. The Ontario fields are confined to the eastern portion; the ice is slowly decreasing in thickness, with water on most of it. There is more ice in all the Lakes than last year at this time.

P. C. DAY, *Climatologist and Chief of Division.*

NOTE—This will be the last bulletin of this series for the season of 1915-16.

Bulletins showing the condition of the ice in the Great Lakes will probably be issued from the Weather Bureau office in Detroit, Mich., for several weeks. Copies may be secured by addressing the office at that place.

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